Biased attentional processing of insults and compliments among aggressive and withdrawn children

Thesis

Biased attentional processing of insults and compliments among aggressive and withdrawn children

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BA (Oxon), PhD (Keele)

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Tables and Figures

1. Introduction

1.1. Attention and social maladjustment

Social maladjustment in children, including behaviour problems and peer relationship difficulties, is a common reason for referral to child mental health services (e.g., Kazdin, 1996). Two prominent types of behaviour problems which affect peer relationships, peer aggression and social withdrawal, have attracted substantial attention from researchers and clinicians. They are associated with a number of other emotional and peer relationship difficulties, such as low self-esteem, anxiety, depression, loneliness, unpopularity with and victimisation by peers (e.g., Pepler & Rubin, 1991; Rubin & Asendorpf, 1993; Schwartz, Dodge & Coie, 1993) and are risk factors for poor adjustment in later life (Parker & Asher, 1987). They represent the two clusters of behaviour problems (externalising and internalising) that have been identified in dimensional approaches to child psychopathology (Achenbach & Edelbrock, 1978). As behavioural symptoms they are more readily apparent to teachers and parents than subjective emotional symptoms, and so more likely to trigger referral for treatment.

Interventions with an underlying cognitive model are increasingly used to treat such disorders (e.g., Kazdin, 1997; Kendall, 1993). Many of these models have been adapted from work with adults and are supported by extensive empirical research on information-processing among adults (e.g., Williams, Watts, MacLeod & Mathews, 1997). To a lesser extent, equivalent theories and supporting research have been developed specifically with children in mind. One influential model of social information-processing was proposed by Crick & Dodge (1994). They hypothesised that children go through a series of interacting cognitive steps as they process social cues in interpersonal interactions, from encoding the cues to enacting a response to

them. Crick & Dodge (1994) argued that maladaptive processing styles at different stages are related to different forms of social maladjustment (e.g., aggression or withdrawal).

In a review of the empirical evidence for their model, Crick & Dodge (1994) noted that more extensive research was needed in several areas. One gap was a shortage of research on the first stage of the model, which concerned the encoding of cues. Referring to the literature on different processing speeds (e.g., Shiffrin & Schneider, 1977), Crick & Dodge (1994) also suggested that much of the supporting research was conducted under conditions of controlled processing (i.e., in which children had ample time to make responses) rather than automatic processing (i.e., in which children were required to make instant responses). Shiffrin & Schneider (1977) and others found that automatic conditions have very different effects on the information processed from those of controlled conditions, and Crick & Dodge (1994) suggested that in peer interactions, children are more likely to need to respond with automatic processing than controlled processing. Encoding processes, which involve attention (Eysenck & Keane, 1990), are often likely to be automatic.

Selective attention is the allocation of processing resources to certain types of cues at the expense of other types (Daleiden & Vasey, 1997). Specifically with regard to selective attention, Crick & Dodge (1994) hypothesised that 'maladjusted children may selectively attend to particular types of social cues (e.g., aggressive or aversive acts) more often than peers' (p.83). They may, for example, develop threat schemas which would bias their attention towards threatening information. Most of the empirical research on selective attention bias in psychological disorders has been conducted with reference to emotional disorders (e.g., anxiety disorders and depression) among adults (Williams *et al.*, 1997). This research has shown that anxious adults' attention is biased

towards threatening information, but it has failed to find a consistent selective attention bias in depression. More limited research among children (Daleiden & Vasey, 1997; Taghavi, Neshat-Doost, Moradi, Yule & Dalgleish, 1999) has suggested that anxious children also have a selective attention bias towards threat. There has been very little research into selective attention among aggressive or socially withdrawn children, or among children with any kinds of peer relationship difficulties, despite the clinical importance of such problems.

One experimental task which has been quite consistent in demonstrating a selective attention bias among anxious adults is the probe detection task (MacLeod, Mathews & Tata, 1986). In MacLeod and colleagues' experiment, clinically anxious and non-anxious participants were asked to watch a computer screen on which successive pairs of words appeared. Sometimes one of the words in a pair was threatening (e.g., *failure*; *coffin*); otherwise the words were neutral. After each word-pair disappeared from the screen, a dot appeared in the location of one of the words. The participants' task was to press a key in response to the dot. MacLeod *et al.* found that anxious participants tended to respond more quickly, and non-anxious participants more slowly, to the dot when it appeared in the position of a threat word than when it appeared in the position of a neutral word. These results have been extensively replicated with a number of changes in procedure and with different types of anxiety (e.g., MacLeod & Mathews, 1988; Mogg, Bradley, DeBono & Painter, 1997; Mogg, Mathews & Eysenck, 1992). Such studies have tended to support MacLeod *et al.*'s findings that anxious adults shift attention towards threatening stimuli and, less consistently, that non-anxious adults shift attention away from them (Mogg & Bradley, 1998).

Vasey and Dalgleish and their colleagues have recently reported using the probe detection task with children in five studies. They have demonstrated an attention bias towards threat among children aged nine and over who had a variety of types of clinical and non-clinical anxiety (Dalgleish, Moradi, Taghavi, Neshat-Doost & Yule, 2001; Taghavi *et al.*, 1999; Vasey, Daleiden, Williams & Brown, 1995; Vasey, El-Hag & Daleiden, 1996), as well as a lack of bias for threat- and depression-related stimuli among depressed children and adolescents (Neshat-Doost, Moradi, Taghavi, Yule & Dalgleish, 2000; Taghavi *et al.*, 1999), a bias away from depression-related material among children with post-traumatic stress disorder (Dalgeish *et al.*, 2001), and a bias away from threat among non-anxious boys (Vasey *et al.*, 1996). Although other types of attention task (such as emotional Stroop, lexical decision, and emotional priming) have been used with children with other problems such as school refusal (Foreman, Dover & Hill, 1997) or spider phobia (Martin, Horder & Jones, 1992), the results of such tasks have not always demonstrated attention bias or been straightforward to interpret (Williams *et al.*, 1997). The success of the probe detection task in demonstrating attentional bias makes it a promising candidate for investigating such a bias among children with behavioural and peer relationship difficulties, with social cue stimuli used prior to the probe.

It is important to consider what kinds of stimuli might elicit an attentional bias among aggressive and withdrawn children and children with peer relationship difficulties in general. Research related to other stages of Crick & Dodge's (1994) model suggests that aggressive children have a hostile bias in processing social cues (e.g., they tend to interpret cues as hostile). One study found that aggressive preschool boys attended selectively to videotapes of aggressive interactions, being slower to shift their attention away from them and more easily distracted by them (Gouze, 1987). Thus

one might expect aggressive children to show an attentional bias towards stimuli that are intended to signal hostility. Socially withdrawn behaviour has often been seen as related to shyness and concerns about being evaluated by others (e.g., Rubin & Asendorpf, 1993; Watson & Friend, 1969). Withdrawn children may therefore share the bias towards threat shown by anxious children, particularly in relation to stimuli which refer to social concerns. Finally, both aggressive and socially withdrawn children are often targets of other peers' aggression (e.g., Boivin, Hymel & Bukowski, 1995; Perry, Kusel & Perry, 1988), and may be hypervigilant towards stimuli which represent such aggression.

1.2. Aims and hypotheses

Verbal insults. All these stimuli may be represented by verbal insults and put-downs. These are prevalent social cues in children's social interactions, with name-calling the most common form of peer aggression (Whitney & Smith, 1993). They indicate clear hostile intent, being seen as 'nasty' (Warden, Christie, Kerr & Low, 1996) or as instances of bullying (Arora, 1996) by most children. They also indicate that the recipient is being negatively evaluated, and it is therefore not surprising that victims of peer aggression tend to express fears of being negatively evaluated (Slee, 1994). It follows that, like anxious children, in a probe detection task aggressive and withdrawn children may show an attentional bias towards words that they may encounter as verbal insults, such as *fat*, or *ugly*. *Thus, the first aim of the present study was to investigate attentional bias towards insults among aggressive and withdrawn children, as well as among children who are neither aggressive nor withdrawn. It was hypothesised that children with these behavioural difficulties would be biased towards insults, whereas average children would be biased away from them.*

Compliments. Attentional biases towards negative stimuli such as insults can be interpreted as indicating a bias towards emotional stimuli in general. Such an interpretation has been given in probe detection studies which found attentional biases relating to both negative and positive stimuli (e.g., Mansell, Clark, Ehlers & Chen, 1999; Martin, Williams & Clark, 1991), as well as for emotional Stroop tasks where similar results were found (Williams *et al.*, 1997). The inclusion of positive social cues allows this interpretation to be tested. Compliments (e.g., calling a child "great" or "friendly") represent a positive social cue that children may encounter. The inclusion of compliments also reduces any mildly unpleasant effect of participating in a task in which insults are viewed on a computer screen. No probe detection studies have yet used positive stimuli with children, and few have used them with adults. *Accordingly, the second aim of the present study was to investigate attentional bias in relation to compliments, and no specific hypotheses were made about compliments.*

Social maladjustment. In a study comparing aggressive and withdrawn children's attentional biases towards positive and negative social cues, it is important to consider other variables which may account for different response times to probes. These include peer victimisation and anxiety (particularly social anxiety). Both are related to social withdrawal, victimisation is related to aggression, and anxiety is known to relate to bias towards threatening stimuli. In addition, victims of peer aggression are attracting growing clinical and research interest (e.g., Juvonen & Graham, 2001) and are, by definition, more often targeted for insults than other children (Arora, 1996; Ross, 1996), and thus might be expected to be hypervigilant for them. It was also possible that other variables such as gender and age may have an effect on bias. Thus, *the third aim of the present research was to investigate the extent to which attentional bias for insults and*

compliments was affected by other variables such as peer victimisation and anxiety. It was hypothesised that anxious children and victims of peer aggression would tend to be biased towards insults.

1.3. Methodological considerations

Methodological issues arising in carrying out these aims included design of the probe detection task, and selection of aggressive and withdrawn participants of an appropriate age and to include a balance of males and females.

Probe detection task. Early studies of adults' responses in the probe detection task (e.g., MacLeod *et al.*, 1986) used a probe on only a proportion of the trials, and required participants to judge whether a probe was present or not. All studies with children have repeated this procedure, but recently Mogg & Bradley (1999) noted two disadvantages of this version of the task. First, most trials are not probed and so the task can become tedious for participants. Second, probes are more likely to occur on trials with threat words, meaning that threat words may serve as a warning to participants to look for a probe, thus complicating interpretation of results. To overcome these difficulties, Mogg & Bradley (1999) developed a forced-choice version of the task, based on that used by Posner, Snyder and Davidson (1980, Experiment 3). Every trial was probed, with the probe replacing one of the two stimuli, and participants were required to judge which position the probe appeared in. A potential drawback of this version of the task is that participants may adopt a strategy of attending only to one stimulus position, thus making the task less sensitive to attentional bias. Nevertheless, using this and similar tasks in which every trial was probed, Mogg and colleagues (e.g., Bradley, Mogg, Falla & Hamilton, 1998) have demonstrated the kinds of selective attention biases which have

been found in the earlier versions of the task. Mogg and Bradley (1999) also recommended the use of the probe position task rather than other adaptations of the task for use with non-clinical groups and children, because this task produced lower variability in reaction times, reducing noise in the data.

Selection of participants. Because of the time constraints on data collection, it was important to use an efficient method of selecting participants, and ideally one which would identify both aggressive and withdrawn participants simultaneously. One difficulty in carrying out research with aggressive children is that, with conventional measures of aggression, far more males than females are identified as aggressive (Maccoby & Jacklin, 1974). Although measures are available which tap typically female forms of aggression (e.g., Crick, 1995) they do not tend also to measure withdrawal, and readily available populations of aggressive children (e.g., in clinical or special educational settings) tend to be overwhelmingly male. Balancing male and female participants is therefore not easy.

One solution is to select aggressive schoolchildren, using peer-report instruments such as the Revised Class Play (Masten, Morison & Pellegrini, 1985). Such instruments derive scales of aggression and withdrawal separately for boys and girls within a group. Children can then be identified on either scale as extreme or average in comparison to their same-sex peers (e.g., Rubin & Mills, 1988). As a result the chance of identifying equal proportions of extremely aggressive (and extremely withdrawn) children is greatly enhanced, and average children (neither aggressive nor withdrawn) can be used as a comparison group to ensure that findings can be attributed to behavioural status. This approach was adopted in the present study. Participants in middle childhood (aged nine to twelve) were chosen because younger children have difficulty identifying which of

their peers are socially withdrawn (Younger, Gentile & Burgess, 1993), because there are fewer practical obstacles to research among children in this age range than among older children (e.g., in the UK they are more likely to be taught together for a significant proportion of school time, and less likely to be preoccupied with examinations), and because verbal insults are prevalent at this age (Whitney & Smith, 1993). As an additional comparison with aggressive schoolchildren, a small group of children referred to a clinic for aggression were included.

2. Method

2.1. Participants

Selection of school participants. A total of 184 schoolchildren (88 females, 96 males; 97.3 per cent White, 2.7 per cent Asian/Mixed Race) from Year 5 to Year 7 (ages 9 to 12), from one junior (Years 5/6, two classes per year) and one secondary school (Year 7, three classes) in a small industrial Northamptonshire town, were initially approached to take part in the study. In separate meetings for each year group, they were given a verbal description of the study (Appendix 2) and asked to take home information letters (Appendix 3) to their parents. The potential benefits of the study were explained in simple terms. It was emphasised that participants' responses would be confidential and that their participation was voluntary. Parents were asked to return written consent forms if they wished their child to take part. Initially, 48 (26.1 per cent) consented and 18 (9.8 per cent, all from the secondary school) refused consent.

To select potential participants for the probe detection task, the schoolchildren who consented were asked to complete the Revised Class Play (RCP; Masten *et al.*, 1985). The RCP is a 30-item peer-report instrument in which the respondent is asked to imagine they are a director of a play in which they are to cast other members of their school class. They are asked to choose children who would fit roles such as 'too bossy', 'plays fair', and 'often left out'. The RCP has often been used to assess children's social roles in the peer group (Coie, Dodge & Kupersmidt, 1990). Masten *et al.* reported a 3-factor structure for the RCP among eight- to twelve-year-old schoolchildren, with separate subscales for sociability (15 items), aggression (7 items), and isolation (7 items; here denoted withdrawal, following the terminology of Rubin & Mills, 1988). In their report, each subscale showed high internal consistency, stability, and strong concurrent, divergent, and criterion validity, with aggression more correlated

with teacher reports of externalising behaviour, withdrawal more correlated with teacher reports of internalising behaviour, and both predictive of other aspects of social competence (see Coie *et al.*, 1990, for further discussion of the validity of the RCP and of peers' reports in general). Originally developed in North America, the RCP has been widely used worldwide and found to have a similar factor structure and similar correlates in cultures as diverse as China and Israel (Chen, Rubin & Sun, 1992; Krispin, Sternberg & Lamb, 1992).

All 27 consenting junior schoolchildren completed the RCP. Of the 21 secondary schoolchildren who consented, one was excluded because she was the only child in her class who gave consent, and a further four were absent on the day of screening. Therefore, the RCP was completed by a median of seven schoolchildren per class (range five to ten, total 43, comprising 20 females and 23 males, 93.0 per cent White).

Respondents completed the RCP in year groups, with the present author and (in secondary school) a teacher present. The same procedure and instructions were used as reported by Masten *et al.* (1985), respondents being asked to indicate which of their classmates was best suited to each role in the imaginary play. To eliminate a potential sex bias in the assignment of roles, the RCP was administered twice for each class. First, respondents completed the 30 items for their classmates of one sex, and then they repeated the procedure for the other sex. The format of the RCP (without names) is shown in Appendix 5. Each of the 30 items headed an alphabetical list of classmates of one sex. All 184 children on the class rosters were included in these lists, whether or not they completed the RCP. Items were phrased as instructions, for example, 'Put a tick by a person who is a <u>good leader</u>. (DO NOT tick yourself)'. Respondents could assign a peer to more than one role, but were asked to choose one (and only one) peer for each role. To ensure that respondents understood the instructions and answered all

items, the present author read instructions to them and read out each item twice as they responded. To protect peers' confidentiality, no items were written on the front and back pages of the answer booklets, respondents were asked to keep their answers to themselves, and each item was read out as soon as most respondents had answered the previous item.

Aggression and withdrawal scales for each child were calculated from the RCP in the same manner as described by Masten *et al.* (1985). First, the number of nominations that each child received for each item from both sexes was totalled. Second, these total scores were standardised as *Z* scores within each sex and within each class. Higher scores indicated stronger peer perceptions of the identified behaviour. Despite the small number of respondents, both subscales showed high internal consistency, with median alphas of .89 for aggression (range .78 to .94) and .91 for withdrawal (range .72 to .95). It should be noted that aggression and withdrawal scores were calculated for all children in each class, irrespective of whether they had completed the RCP. Children were identified as aggressive or withdrawn if the appropriate score exceeded one standard deviation (SD) above the mean. A cut-off point of 1 SD is commonly used by peer relations researchers who wish to identify extreme groups (Hymel, Bowker & Woody, 1993; Terry & Coie, 1991). Two children identified as both aggressive and withdrawn were excluded. Children who scored below the mean on both subscales were identified as average. This method identified 19 children of the original 184 schoolchildren as aggressive schoolchildren (8 females, 11 males), 18 as withdrawn schoolchildren (9 females, 9 males), and 82 as average schoolchildren (44 females, 38 males).

School participants. Because only a few of the 37 schoolchildren identified by peers as aggressive or withdrawn had replied to consent letters, additional letters were sent

directly to the parents of the 22 junior schoolchildren who had not replied. These were followed up with reminders if there was no response. An additional 19 consent forms were returned as a result, eight of them giving consent. Parents of secondary schoolchildren were not contacted a second time, at the request of the liaison teacher, who advised that those who had wished to respond had already done so. Of the 33 children who were identified as aggressive, withdrawn, or average and who finally gave written consent, all but three average secondary schoolchildren (excluded because there were already sufficient secondary schoolchildren to compare to aggressive and withdrawn agemates) were invited to complete the probe detection task. Only one participant (a Year 5 girl) refused, and so a total of 30 schoolchildren (15 females, 15 males; 96.7 per cent White) completed the probe detection task, including 13 from Year 5, 10 from Year 6, and 7 from Year 7. In terms of their behavioural status, these participants included seven aggressive schoolchildren (three females, four males), eight withdrawn schoolchildren (three females, five males), and 15 average schoolchildren (nine females, six males). Only one of the aggressive schoolchildren (male) had a standardised withdrawal score greater than zero (aggression $Z = 2.02$, withdrawal $Z = .58$). Only one of the withdrawn schoolchildren (female) had a standardised aggression score greater than zero (withdrawal $Z = 1.29$, aggression $Z = .86$).

Clinical participants. In addition to the schoolchildren, the parents of six children (one female, five males, all White) who had been referred to a Child and Family Guidance Service (based in the same town as the schools) because of their aggressive behaviour were contacted with information about the study (Appendix 4). These children were essentially chosen for ease of contact, in that five of them (including the girl) visited the clinic weekly for a group intervention programme, and the sixth was being seen for

clinical assessment by the author. All of them had been referred for problems described as including 'aggression', 'anger', or 'temper'. One additional child in the group intervention programme who had been described in these terms was not included, because colleagues advised that his behaviour might disrupt the procedure. The author was not working with any other children with aggressive problems at the time. Consent was received for all six clinically aggressive children to carry out the probe detection task.

Summary. Thus, all together, the participants in the probe detection task were 36 children aged 9 to 12. These included 30 children chosen from a school sample and 6 children clinically referred for problems with aggression.

2.2. Materials

Design of probe detection task. The probe detection task was based on the design used with adults by Mogg & Bradley (1999), but features of the task as adapted for children by Vasey *et al.* (1996) and Taghavi *et al.* (1999) were also incorporated. In particular, following pilot work, these authors used a longer presentation time for stimuli (respectively 1250ms and 1500ms) than in adult studies (typically 500ms). In the present study the task consisted of 68 trials. Each trial began with the presentation of a smiley face in the centre of the screen for 750ms. Then a pair of words appeared, one above the other, for 1250ms. Immediately after their offset, a dot probe appeared in the location of one of the words. Participants' task was to press one of two keys to indicate the location of the dot probe. The probe remained on the screen until they gave the correct response (up to a maximum of 10 seconds), and their reaction time (probe detection latency) was recorded. The next trial then followed immediately.

Two trials at the beginning and two at the end of the task were buffer trials, presenting neutral word pairs. The remaining 64 trials contained either an insult or a compliment, paired with a neutral word. These trials were set up to yield a 2 × 2 × 2 within-participants design with the following independent variables: *word type* (half the target words were insults, and half compliments), *word position* (half the target words appeared in the upper part of the screen, and half in the lower part), and *probe position* (half the probes appeared in the upper part of the screen, and half in the lower part). The design was balanced so that eight target words were attached to each of eight conditions. That is, eight insults and eight compliments appeared in each of the following four combinations: upper target word followed by upper probe; upper target word followed by lower probe; lower target word followed by upper probe; lower target word followed by lower probe.

Stimuli for probe detection task. The target words used as stimuli in the probe detection task are shown in Table 2.1. Thirty-two were designated insults and 32 compliments. The target words were drawn from various sources. Some were chosen from words generated by one Year 5 and two Year 6 classes, comprising a total of 71 children in a separate junior school (31 females, 40 males, including, mean age = 9.9 years), who were given five minutes to write words that one child would call another (a) to upset or insult them, and (b) to make them feel good about themselves (adapting procedures used by Neshat-Doost, Moradi, Taghavi, Yule & Dalgleish, 1999; see Appendices 8 and 9). Target words were either taken directly from those the children wrote, or were adapted by truncating words or phrases (e.g., 'fatty' was abbreviated to 'fat'). Words were not considered as targets if they were ambiguous (listed by children in both categories, or ambiguous in other ways, e.g. qualifiers such as "very"); if their content was sexual,

obscene, or racist, or could be interpreted as such; if there were no age of acquisition or verbal frequency data available for them (hence the need to truncate words and phrases); or if their age of acquisition rating was greater than 400, indicating acquisition after the age of six. Because these constraints reduced the number of words written by the children that could be used, additional target words were taken from Vasey *et al.*'s (1996) experiment and from positive and negative self-descriptors and anxiety- and dysphoria-related words generated previously by schoolchildren (Neshat-Doost *et al.*, 1999), or added by the present author. A second rater classified all target words as insults or compliments, with 96.9 per cent agreement with the present author.

Each target word was matched with a neutral word for length, age of acquisition, and frequency. Age of acquisition and frequency data were taken from the MRC Psycholinguistic Database and the database published by Bird, Franklin & Howard (2001). Age of acquisition was rated by adults using Gilhooly & Logie's (1980) method. Morrison, Chappell & Ellis (1997) have shown that adult-rated age of acquisition is a sufficiently valid indicator of the age of learning words when children's ratings are not available, as adults' ratings agree with children's. Paired words were matched to within one year for age of acquisition. Because spoken frequency norms are more appropriate for social cues than written frequency norms, Brown Verbal Frequency (from the MRC Psycholinguistic Database) or combined spoken and written frequency ratings (from Bird *et al.*, taken from the Celex Database) were used when available, with Kučera-Francis written frequency used for some stimuli. Paired words were matched to within a logarithm of frequency of 0.5. As well as the target word pairs, 25 pairs of neutral words were also matched for length. Four of these pairs were used in buffer trials, and the remainder for practice. Matched pairs of words are shown in Appendix 10.

Table 2.1. Target words used as stimuli in probe detection task

Insults		Compliments	
baby	nasty	beautiful	helpful
bad	odd	best	honest
big	pig	cheerful	kind
cheat	poor	clean	like
chicken	rubbish	clever	love
cry	sad	content	lovely
dirty	short	cool	nice
dog	shut	fast	play
fat	shy	fine	pretty
foolish	spot	friend	right
ginger	stupid	funny	share
hate	terrible	give	strong
kick	ugly	good	thank
liar	weak	great	want
little	worst	happy	well
monkey	wrong	help	wicked

Apparatus for probe detection task. The task was presented on a 40Mhz 486 DX-2 Compaq laptop PC, with a 175mm × 134mm screen, using the Super Lab Pro 2.0 software (Cedrus Corporation, 1999) and the PC's multimedia timer (accurate to 1ms). Word pairs were presented in the centre of the screen against a black background, in white Arial block capitals, approximately 8mm high and separated vertically by 32mm.

The 'T' key was used to respond to the upper probe and the 'B' key for the lower probe. The 64 target trials were presented in a random order.

Adjustment questionnaires. Two questionnaires were administered to participants in addition to the probe detection task. Anxiety was measured with the Multidimensional Anxiety Scale for Children (MASC; March *et al.*, 1997; Appendix 6), a 39-item scale in which respondents rate the truth of items about themselves. The MASC yields a generalised anxiety scale and subscales for physical symptoms, harm avoidance, social anxiety, and separation/panic. In the present study the generalised anxiety scale and the 9-item social anxiety subscale were of interest. Reliability and validity data were published by March *et al.* (1997). In the present sample the generalised anxiety scale and the social anxiety subscale was highly internally consistent (αs = .87 and .82 respectively). Possible generalised anxiety scores ranged from 0 to 117, and social anxiety scores from 0 to 27, higher scores indicating greater anxiety.

Participants were also asked to complete the victimisation and bullying scales from Rigby & Slee's (1993) Peer Relationships Questionnaire (Appendix 7). Each scale was a four-item self-report measure of respondents' tendency (respectively) to be bullied by others or to bully others. Possible scores ranged from 4 to 16 on each scale, with higher scores representing a greater tendency to be victimised or to bully. These scales were chosen because of their brevity and because of evidence for good internal consistency and concurrent and construct validity (e.g., Rigby & Slee, 1993; Slee, 1995). The victimisation scale was used to investigate how victimisation affected attentional bias, and the bullying scale as a measure to compare the aggressiveness of the two groups of aggressive participants. Although the relevant research has been carried out in Australia, no similarly brief instrument for measuring victimisation and

bullying has been used in the UK. In the present sample there was good internal consistency for both the bullying scale (α = .78) and the victimisation scale (α = .81).

2.3. Procedure

The research procedures were approved by Northamptonshire Medical Research/Ethics Committee and Kettering Ethical/Research Committee (Appendices 11 to 14). Schoolchildren completed the probe detection task approximately two months after they had been identified with the RCP, and were tested individually, either in a quiet study with an open door (junior school) or at the back of a classroom (secondary school). Junior schoolchildren completed the adjustment questionnaires in small groups away from the classroom, with the present author reading the items and instructions to them if necessary, on the same day or within a few weeks of completing the probe detection task. Secondary schoolchildren completed these questionnaires immediately before or after the probe detection task, usually in the presence of another participant who was completing the task. Clinical participants completed the task and questionnaires in a quiet office in the Child and Family Guidance Service base. One clinical participant and one school participant were tested in their homes because they were not available at other times.

Participants were reminded that their participation was voluntary and their responses confidential. They were oriented to the probe detection task with a short description of the task and their required responses, and were asked to follow these interactive instructions written on the computer screen:

> Today you are going to do an experiment with the computer. Please read these instructions carefully. First, look in the middle of the screen where you will see a

smiley face. Press the spacebar to see a face now. [The face appeared briefly.] After about 1 second, the face will disappear. Then you will see two words in the middle of the screen, one above the other. Press the spacebar now to see some words. [A neutral word pair appeared briefly.] After about 1 second, the words will disappear. Then you will see a small dot where the top word was or where the bottom word was. Press the spacebar now to see a dot. [A dot probe appeared in the upper position briefly.] That dot was where the top word was. When you see a dot where the top word was, press T as fast as you can. Press the spacebar now to see the dot again. Remember to press T as fast as you can when you see the dot. [The upper dot probe reappeared. Feedback was provided to participants according to their response, either, 'Good! That's right!', or 'Whoops! Wrong key! Try again...', or if the participant did not respond within 10s, 'Sorry, too slow. Try again...'] You could also see a dot where the bottom word was. When you see a dot where the bottom word was, press B as fast as you can. Press the spacebar now to see a dot where the bottom word was. When you see it, press B as fast as you can. [A dot probe appeared in the lower position. Feedback was provided to participants according to their response, as before.] Remember this is what you have to do. 1. Look at the smiley face when you see it in the middle of the screen. 2. When you see a dot where the top word was, press T as fast as you can. 3. When you see a dot where the bottom word was, press B as fast as you can.

Participants were then asked to practice the task for eight trials. Feedback was given for each response. After this, they were asked to practice for a second set of 12 trials. To prevent the occurrence of floor effects, the author inspected practice data after each practice set and asked the participant to repeat the second practice trials if there

was evidence of slowed responding (a large proportion of detection latencies above 1000ms). Participants were also encouraged, particularly if responding slowly, to sit with two fingers poised over the response keys. After participants had sufficient practice, they completed the 68 trials of the experimental task in a single block with no breaks (this took approximately four minutes). To prevent participants' feeling coerced into participation, the author checked after each stage of practice that the participant was happy to continue with the task. Finally, each participant was asked if they had any comments or questions and thanked for their participation.

2.4. Data analysis

Most data analyses were based on a 3-way within-participants analysis of variance (ANOVA), with mean probe detection latencies within each cell as the dependent variable, and word type (compliment vs insult), word position (upper vs lower), and probe position (upper vs lower) as independent variables. Additional between-participants variables were added as factors as indicated in the results. Attention bias effects were indicated by a significant interaction involving word position and probe position. All tests were two-tailed. The power of these effects was noted, with alpha at .05. To prepare the data for these analyses, mean probe detection latencies were calculated (after deleting latencies > 3000ms, to reduce the influence of outliers) for each of the eight combinations of within-participants variables. Assumptions for the main analyses were checked as suggested by Tabachnick & Fidell (1996). All the ANOVAs which involved within-participants factors were conducted with the SPSS GLM Repeated Measures procedure, and thus used the multivariate approach to ANOVA, or profile analysis (Tabachnick & Fidell, 1996).

Additionally, attention bias scores were calculated separately for compliments and insults, using the following formula (taken from MacLeod & Mathews, 1988)

$$\frac{(UP / LT - UP / UT) + (LP / UT - LP / LT)}{2}$$

where UP/LT corresponds to the mean detection latency for upper probes when preceded by a lower target word, and so on. Positive attention bias scores represented speeded processing of the target word, and negative scores represented slowed processing. Bias scores incorporate the word position × probe position interaction effect on detection latencies (Mogg *et al.*, 1992), and so were used in some analyses to represent this effect, particularly as they are easier to interpret.

3. Results

3.1. Preliminary analyses

As a first step, preliminary analyses were carried out to investigate possible confounding effects of different variables.

Sex. Twenty participants were boys and sixteen were girls. Numbers were too small to determine the relation between sex and behaviour category. There were no sex differences in anxiety or victimisation, though boys had greater self-reported bullying scores than girls, t (30) = 2.3, p = .028. Boys' probe detection latencies were shorter than girls' when upper probes were preceded by lower insults (573ms vs 705ms), t (34) = 2.5, p = .018, but there were no other sex differences in detection latencies for other combinations of within-participants variables. Sex differences in compliment bias approached significance, t (34) = 1.8, p = .08, boys being more biased towards compliments (+56ms) than girls (+10ms). These preliminary analyses suggested that it would be important to investigate sex differences further.

Age. Participants' mean age at testing was 10.8 years (SD = .97 years). Age was not significantly related to sex, behaviour category, aggression, withdrawal, anxiety, bullying or victimization score, mean probe detection latencies for each combination of within-participants variables, or bias scores, all Fs < 2, all rs < .3 in magnitude, all ps > .1.

Adjustment indices. Anxiety, bullying, and victimization were measured as potential covariates alongside participants' completion of the experimental task. Mean scores were 45.1 (SD = 18.00) for anxiety, 6.9 (SD = 2.66) for bullying, and 9.4 (SD = 3.23)

for victimisation. Separate one-way between-participants ANOVAs were carried out on each of these variables, with behaviour category as the independent variable. Homogeneity of variance assumptions were met for all three analyses (*p*s > .05). There was no difference among groups in the level of anxiety, bullying, or victimization, all *F*s (3, 28) < 2.2, all ps > .1. Notably, both clinically aggressive children and aggressive schoolchildren's mean bullying score was 8, suggesting that these groups were similar in their levels of aggression.

Table 3.1. Sex differences in the effects of adjustment on attentional bias

Bivariate correlations between attentional bias and adjustment for each sex

		Bias Type	
Sex	Adjustment	Compliments	Insults
Boys	Anxiety	- .06	-.30
(*N* = 18)	Bullying	.36	.00
	Victimisation	-.63**	-.41^{+}
Girls	Anxiety	.07	.50^{+}
(*N* = 14)	Bullying	.18	.41
	Victimisation	.20	.14

$^{+}p < .10$; ** $p < .01$.

Bivariate correlations between each adjustment index and probe detection latencies for each combination of within-participants variables were generally low, *p*s > .1, with medians of $r = -.10$ (range -.24 to .08) for anxiety, $r = .13$ (range -.07 to .24) for bullying, and $r = -.11$ (range -.17 to -.05, with one exception of a negative correlation with detection latencies for lower probes following upper insults, $r = -.39$, $p = .027$) for

victimization. Bivariate correlations with bias scores ranged from -.24 to .34, with only one (for bullying with compliments) approaching significance ($p = .06$). Because of the conceptual closeness between bullying and aggression, this correlation was not considered further, and these three variables were not considered generally as covariates in analyses. However, when bivariate correlations with bias scores were calculated separately for each sex (see Table 3.1), they suggested that sex may moderate the effect of anxiety and victimization on compliment or insult bias.

3.2. Effects of behaviour

Mean probe detection latencies were subjected to a 4-way mixed-factor analysis of variance (ANOVA), with one between-participants factor, behaviour category (clinically aggressive vs aggressive schoolchildren vs withdrawn schoolchildren vs average schoolchildren), and three within-participants factors, word type, word position, and probe position.

Assumption checks indicated that the sample size in the smallest group was smaller than the number of within-participants cells, thus potentially lowering the power of the analysis. The actual power of key effects is reported below. Profile analysis is not always robust to violations of normality when there are unequal sample sizes, and fewer cases than dependent variables in the smallest group, as in the present instance. Accordingly the distributions of probe detection latencies were examined within each cell for skewness. In no instance was there significant skewness, with alpha set at .001 (the conservative level recommended by Tabachnick & Fidell, 1996, p.72). Two participants, both withdrawn girls, were outliers in boxplots for several cells of the within-participants design. Because of the small numbers they were not deleted, but were reconsidered later in terms of their likely impact on results. Homogeneity of

variance assumptions were met, with no Levene statistics significant at the .01 level. Homogeneity of covariance assumptions were not necessary because no within-participants variable had more than two levels. Distributions of probe detection latencies all had positive skews within each cell of the within-participants design. Linearity assumptions can be assumed to be met when distributions are skewed in the same direction (Tabachnick & Fidell, 1996).

There was a significant main effect of word type, $F(1, 32) = 8.85$, $p = .006$. In general, detection latencies were faster to probes when they followed compliments (629ms) than when they followed insults (656ms). There was also a significant 3-way interaction involving word type, word position, and probe position, $F(1, 32) = 8.36$, $p = .007$ (power = .80). Separate 2-way ANOVAs for each word type indicated that this interaction held for compliments, $F(1, 35) = 7.24$, $p = .011$ (power = .74), but not insults (though power was low at .19). This interaction reflected a tendency for faster probe detection latencies when the probe appeared in the same position as the compliment, than when the two appeared in different positions. Thus, the mean latencies for upper compliments were 621ms for upper probes and 640ms for lower probes, and the mean latencies for lower compliments were 648ms for upper probes and 595ms for lower probes.

It is important not to overstate these two effects, however, because both of them were qualified by a significant 4-way interaction, $F(1, 32) = 3.52$, $p = .026$ (power = .73). Marginal means for this interaction are shown in Table 3.2. There were no other significant main effects or interactions (with power < .58 for all other terms). The presence of a higher-order interaction indicates that main effects and lower-order interactions do not predict individual cell means perfectly (Keppel, 1982).

Table 3.2. Effects of behaviour on probe detection latencies

		Mean probe detection latencies (ms) (standard errors in parentheses)			
		Word type and position			
		Compliment position		Insult position	
Behaviour category	Probe position	upper	lower	upper	lower
Clinically	upper	559 (30.9)	593 (45.9)	592 (39.3)	571 (51.8)
aggressive	lower	672 (76.9)	592 (46.4)	662 (62.7)	654 (64.7)
Aggressive	upper	589 (53.3)	697_a (87.3)	693 (48.8)	641 (51.6)
schoolchildren	lower	629 (78.6)	544_a (42.0)	629 (81.8)	679 (71.1)
Withdrawn	upper	751 (115.5)	706 (75.7)	737 (98.6)	689 (87.7)
schoolchildren	lower	648 (84.9)	650 (78.7)	767 (141.6)	696 (87.0)
Average	upper	592 (38.2)	615 (34.4)	619 (47.8)	622 (40.2)
schoolchildren	lower	628 (53.9)	591 (39.8)	606 (48.3)	645 (45.2)

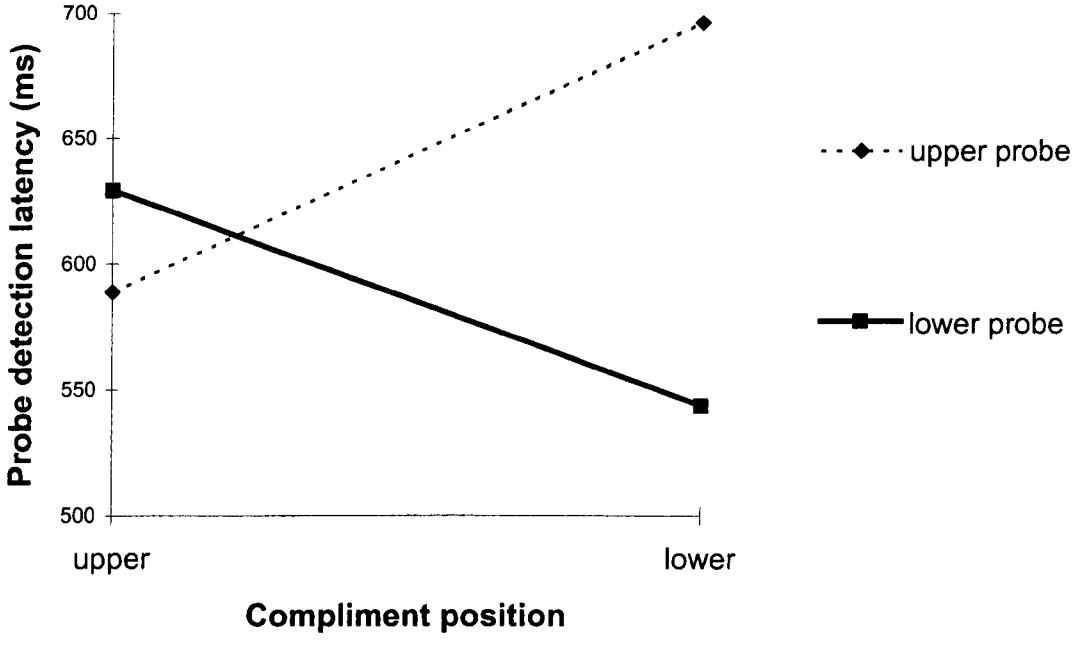
Note. Means with the same subscripts differ significantly, $p < .05$.

The 4-way interaction was first broken down by carrying out separate within-participants analyses for each group, as is often done in probe detection experiments (e.g. MacLeod & Mathews, 1988; McLeod *et al.*, 1986; Mogg *et al.*, 1992). Thus, a 2 (word type) × 2 (word position) × 2 (probe position) repeated-measures ANOVA was carried out separately for each of the four groups. In these ANOVAs, two interaction effects, and no main effects, reached significance. The 3-way interaction effect was significant among aggressive schoolchildren, $F(1, 6) = 14.37$, $p = .009$ (power = .88).

The same interaction reached borderline significance for clinically aggressive children, $F(1, 5) = 5.88, p = .06$ (power = .50), and the control group, $F(1, 14) = 3.73, p = .074$ (power = .44), but not the withdrawn group, $F < 1$, power = .09. However, in the withdrawn group there was a significant word type × probe position interaction, $F(1, 7) = 5.99, p = .044$ (power = .56).

The interaction effect for aggressive schoolchildren was examined by carrying out separate 2-way interaction effects analyses for each type of word among aggressive schoolchildren. These analyses revealed a significant interaction of word position and probe position for compliments, $F(1, 6) = 7.72, p = .032$ (power = .64), but not for insults, $F(1, 6) = 1.57, p > .1$ (power = .19). Aggressive schoolchildren responded faster to probes when these appeared in the same part of the screen as compliments than when probe and compliment appeared in different parts of the screen. Thus, with compliments in the upper part of the screen, their mean probe detection latencies were 589ms for upper probes and 629ms for lower probes. With compliments in the lower part of the screen, their mean probe detection latencies were 697ms for upper probes and 544ms for lower probes. This interaction is displayed in Figure 3.1. Simple effects contrasts of probe position, with word position held constant, indicated that only the latter two means differed significantly from each other, $F(1, 6) = 8.34, p = .028$ (power = .68). There were no significant effects in simple effects tests of word position with probe position held constant.

Figure 3.1. Aggressive schoolchildren's probe detection latencies following compliments



The interaction effect of word type × probe position, for withdrawn schoolchildren, was examined by carrying out simple contrasts of the effect of probe position for each type of word. These contrasts revealed a significant effect of probe position for compliments, $F(1, 7) = 10.12$, $p = .015$ (power = .78), but not insults, $F < 1$ (power = .07). When probes were preceded by compliments, withdrawn children responded faster to lower probes (649ms) than upper probes (729ms). The non-significant trend was opposite for insults (732ms vs 713ms). Because of the possible effect of outliers among the withdrawn group, this analysis was repeated with the two outliers deleted, but there was no change to the pattern of results.

None of the other probe position × word position interactions shown in Table 3.2 reached significance. However, there are some consistencies in the trends worth observing, and they can be illustrated more clearly with reference to bias scores. The bias scores displayed in Table 3.3 represent the extent to which participants in each group were biased towards (for positive scores) or away from (for negative scores) each type of word. They are also illustrated in Figure 3.2. Single-sample *t* tests indicated a significant bias towards compliments among aggressive schoolchildren, $t(6) = 2.78$, $p = .032$, and similar trends among clinically aggressive children, $t(5) = 2.24$, $p = .075$, and average schoolchildren, $t(14) = 2.06$, $p = .06$.

Table 3.3. Effects of behaviour on attentional bias

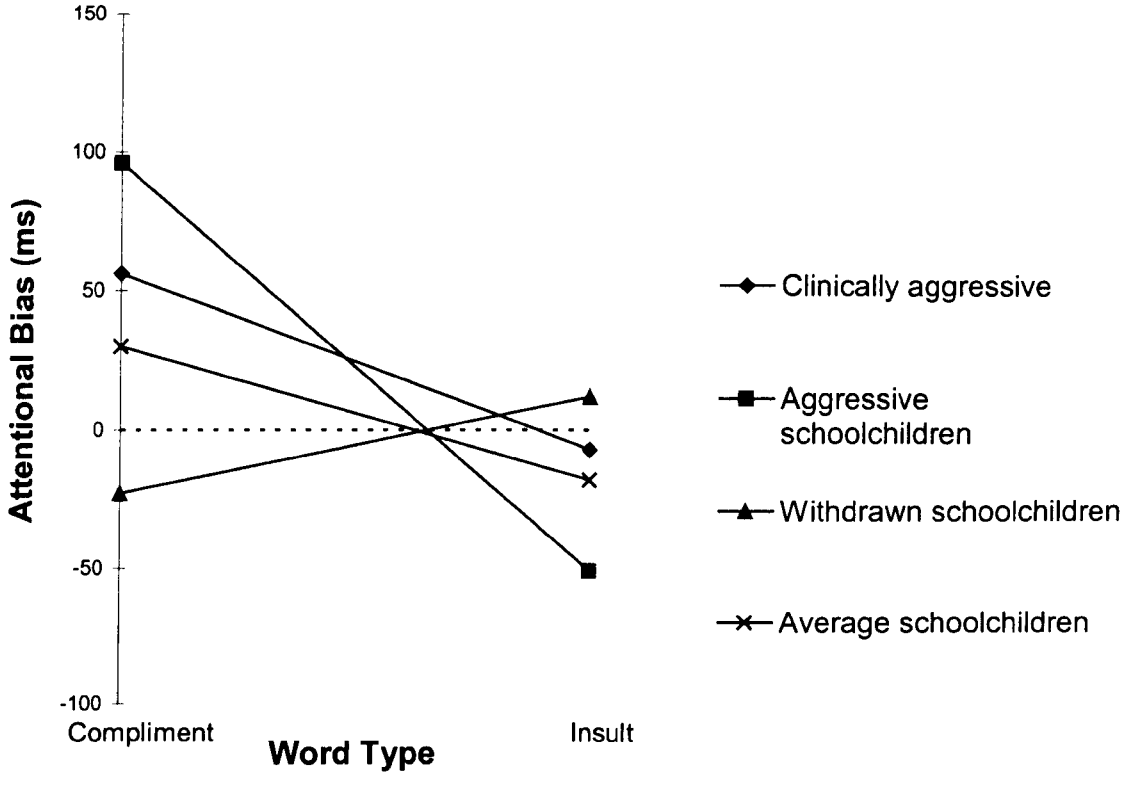
	Mean bias scores (ms) (standard errors in parentheses)	
Behaviour category	Compliment	Insults
Clinically aggressive	+56^{+} (29.0)	-7 (35.3)
Aggressive schoolchildren	+96* (26.8)	-51 (32.7)
Withdrawn schoolchildren	-23 (25.1)	+12 (30.6)
Average schoolchildren	+30^{+} (18.3)	-18 (22.3)

$^{+}$ differs from zero, $p < .1$; * differs from zero, $p < .05$.

Three features of the results are indicated in Table 3.3. First, there was an overall tendency of a greater bias towards compliments than insults. This was reflected in the main effect of word type, and a paired *t* test showed that compliment bias overall was greater than insult bias, $t(35) = 2.6$, $p = .015$. Second, average schoolchildren and clinically aggressive children tended to show a pattern similar to, but not as extreme as,

aggressive schoolchildren, tending to be biased towards compliments and away from insults. Third, withdrawn schoolchildren showed a trend towards being biased away from compliments and towards insults. Though this trend did not approach significance, it is noteworthy because it was the reverse of the trend for the aggressive and average groups.

Figure 3.2. Attentional bias for different behaviour categories



It was clear that these results did not support the main hypothesis of the present research, that aggressive and withdrawn children were biased towards insults. Neither did preliminary analyses (Section 3.1) offer support to the hypothesis that anxious and bullied children were biased towards insults. However, there was evidence of attentional bias involving compliments in the preceding ANOVA, and of the possible

influence of sex differences in the preliminary analyses. Neither of these results had been hypothesised, but both related to the broader aims of the study, of investigating the factors affecting compliment bias and bias towards both types of words. Accordingly, a decision was made to change the focus of the data analysis from testing the study hypotheses to fully exploring patterns in the data and identifying the factors that affected attentional bias.

As part of this approach, numerous statistical tests were carried out. Such multiple significance testing risks inflating the Type I error rate, with spuriously significant results more likely to be found by chance. A potential remedy would be to lower the alpha level (e.g., from .05 to .01) to reduce the risk of Type I error. However, it was considered more appropriate in the following analyses to conserve statistical power by fixing alpha at .05, while acknowledging the limitations of such an approach. This alpha level was used because the study was preliminary, the analyses exploratory, and the goal to gather information about the factors likely to be affecting attentional bias, rather than (at this stage) to test specific hypotheses. To limit the inflation of Type I error, the following analyses were based on omnibus ANOVAs with post-hoc explorations of significant effects.

3.3. Effects of gender

Preliminary analyses suggested that sex differences may be present in the data, and it was possible that these influenced attentional bias. Though sex did not significantly vary across the behaviour categories, the lack of significance may have been due to the small proportions of participants of each sex within each behaviour category. To investigate the effect of sex, the 4-way mixed-factor ANOVA on detection latencies was repeated with sex instead of behaviour category as a between-participants factor. It was

not possible to include both between-participants factors because of the small sample sizes involved.

In this instance the sample size in the smallest cell (16 girls) exceeded the number of within-participants cells, indicating that multivariate repeated-measures ANOVA was an appropriate approach, that the power would not be affected by a small sample size, and that the analysis would be reasonably robust to violations of normality (Tabachnick & Fidell, 1996). There was no significant skewness within the cells of the analysis. As this type of analysis is sensitive to outliers, it is important to note that there were two female and three male outliers on boxplots of probe detection latencies for each cell, as well as an additional female outlier on boxplots of compliment bias scores. These outliers were not initially deleted but their potential influence was considered in the light of the results. Homogeneity of variance assumptions were met, all Levene statistics nonsignificant, $ps > .01$, and homogeneity of covariance assumptions were unnecessary. Boxplots suggested that skew directions were variable among girls, but there was no evidence of curvilinear relationships in scatterplots of compliment or insult probe detection latencies.

There was a significant main effect of word type, $F(1, 34) = 9.33$, $p = .004$ (power = .84), and a significant 3-way interaction of word type, word position, and probe position, $F(1, 34) = 5.92$, $p = .02$ (power = .66). Both these effects were described in Section 3.2. As they did not involve sex, they were not investigated further. There was, however, a significant 4-way interaction, $F(1, 34) = 4.33$, $p = .045$ (power = .53). Marginal means for the interaction are shown in Table 3.4. No other main effects or interactions were significant (power < .37).

Table 3.4. Effects of sex on probe detection latencies

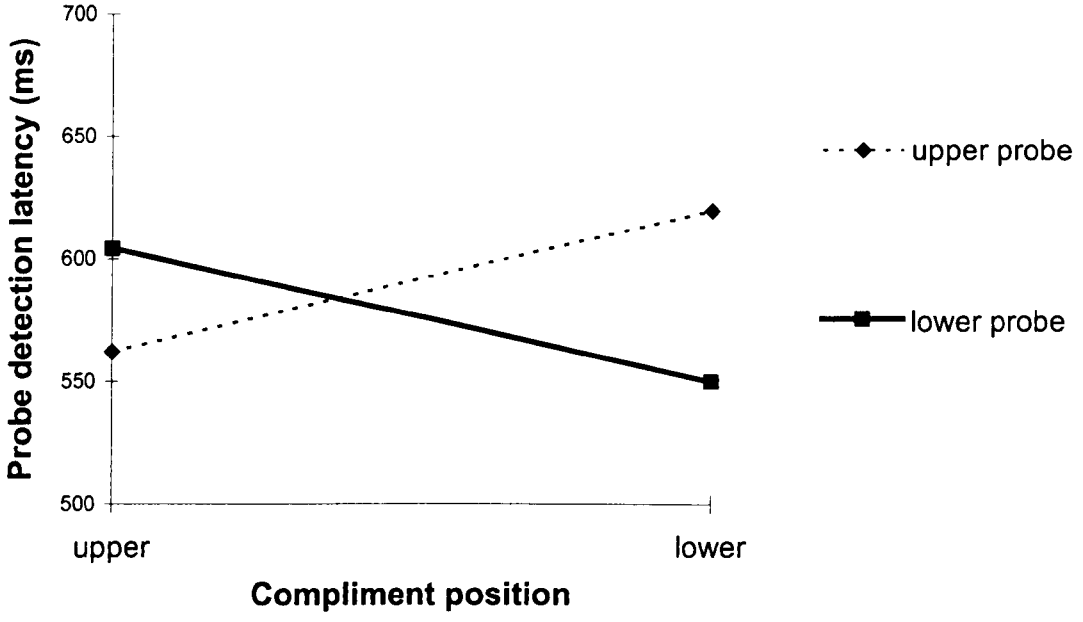
		Mean probe detection latencies (ms) (standard errors in parentheses)			
		Word type and position			
		Compliment position		Insult position	
Sex	Probe Position	Upper	lower	upper	lower
Female	upper probe	695 (62.2)	682 (49.5)	693 (56.6)	705 (47.7)
	lower probe	684 (55.5)	652 (45.6)	724 (77.9)	730 (50.8)
Male	upper probe	562_{a} (27.8)	620_{ab} (32.8)	625_{d} (35.0)	573_{d} (28.6)
	lower probe	604_{c} (41.8)	550_{bc} (26.6)	601 (38.5)	612 (34.9)

Note. Means with the same subscript differ $p < .05$.

This 4-way interaction was examined by carrying out word type × word position × probe position ANOVAs on detection latencies, separately for boys and girls. For girls, the 3-way ANOVA revealed a significant effect of word type, F (1, 15) = 6.75, $p = .02$ (power = .68), and no other significant effects (power < .31). Girls responded more slowly to probes following insults (713ms) than to probes following compliments (678ms). Boys showed a similar but less marked pattern (603ms vs 584ms).

For boys, the 3-way ANOVA revealed a significant 3-way interaction, F (1, 19) = 19.92, $p < .001$ (power = .99), and no other significant effects. To investigate the nature of this interaction, separate word position × probe position ANOVAs were carried out for compliments and insults, for boys only. There was a significant 2-way interaction effect for compliments, F (1, 19) = 14.89, $p = .001$ (power = .96), and a marginally significant 2-way interaction effect for insults, F (1, 19) = 3.24, $p = .088$ (power = .40). No main effects were significant (power < .21).

Figure 3.3. Boys' probe detection latencies following compliments

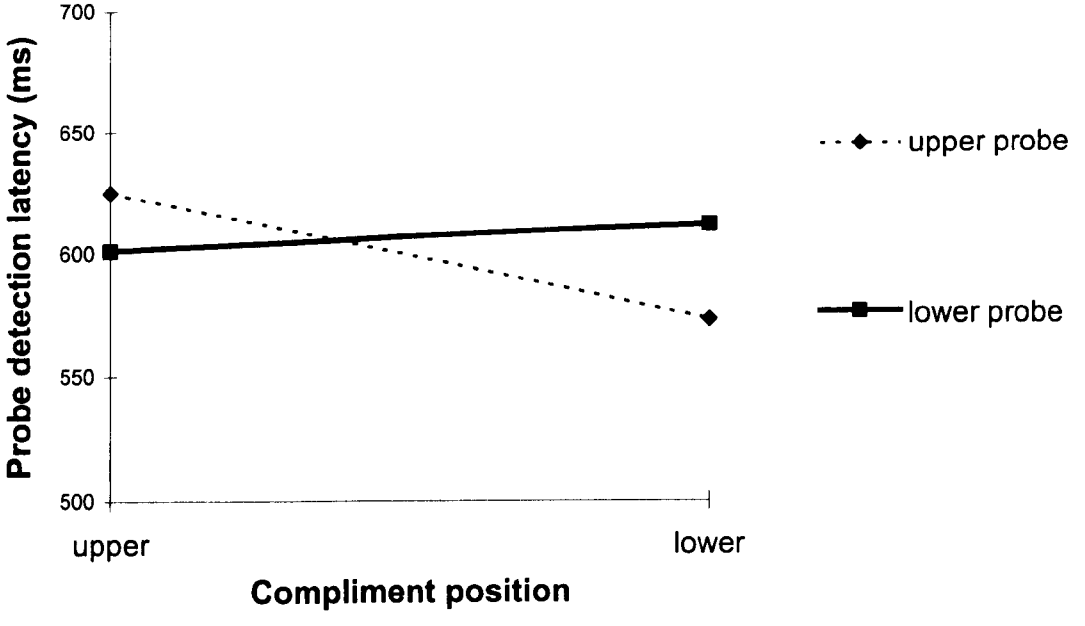


Simple effects contrasts for compliments indicated that boys responded faster to probes when these appeared in the same part of the screen as compliments than when both appeared in different parts of the screen. Specific differences are shown in Table 3.4. With probes appearing in the upper part of the screen, boys' mean detection latencies were 562ms when probes followed upper compliments, and 620ms when probes followed lower compliments. Simple effects contrasts showed that boys responded more rapidly in the former than in the latter instance, $F(1, 19) = 4.45$, $p = .048$ (power = .52). With probes appearing in the lower part of the screen, boys' mean detection latencies were 604ms when probes followed upper compliments, and 550ms when probes followed lower compliments. Simple effects contrasts showed that boys responded more rapidly in the latter than in the former instance, $F(1, 19) = 5.86$, $p = .026$ (power = .63). Additionally, simple effects contrasts of probe position, at each level of word position, showed that, when probes followed compliments in the lower

part of the screen, boys responded more rapidly to lower probes than upper probes, F (1, 19) = 7.14, p = .015 (power = .72). Boys' processing pattern for probes following compliments is illustrated in Figure 3.3.

Simple effects contrasts for insults revealed a slight tendency for boys to respond faster to probes which appeared in a different part of the screen from insults than to probes which appeared in the same position as insults. Thus, when probes appeared in the upper part of the screen, boys responded more rapidly when the probe was preceded by a lower insult than when the probe was preceded by an upper insult, F (1, 19) = 5.25, p = .034 (power = .59). Boys' processing pattern for probes following insults is illustrated in Figure 3.4.

Figure 3.4. Boys' probe detection latencies following insults



Bias scores for each sex are shown in Table 3.5, and illustrated in Figure 3.5. Boys showed a significant bias towards compliments, t (19) = 3.86, p = .001, and a marginally significant bias away from insults, t (19) = 1.80, p = .088. Paired t tests showed that boys were more biased towards compliments than towards insults, t (19) = 4.46, $p < .001$. Girls did not show a significant bias to either compliments or insults, or a greater bias towards one than the other, all ts < 1.

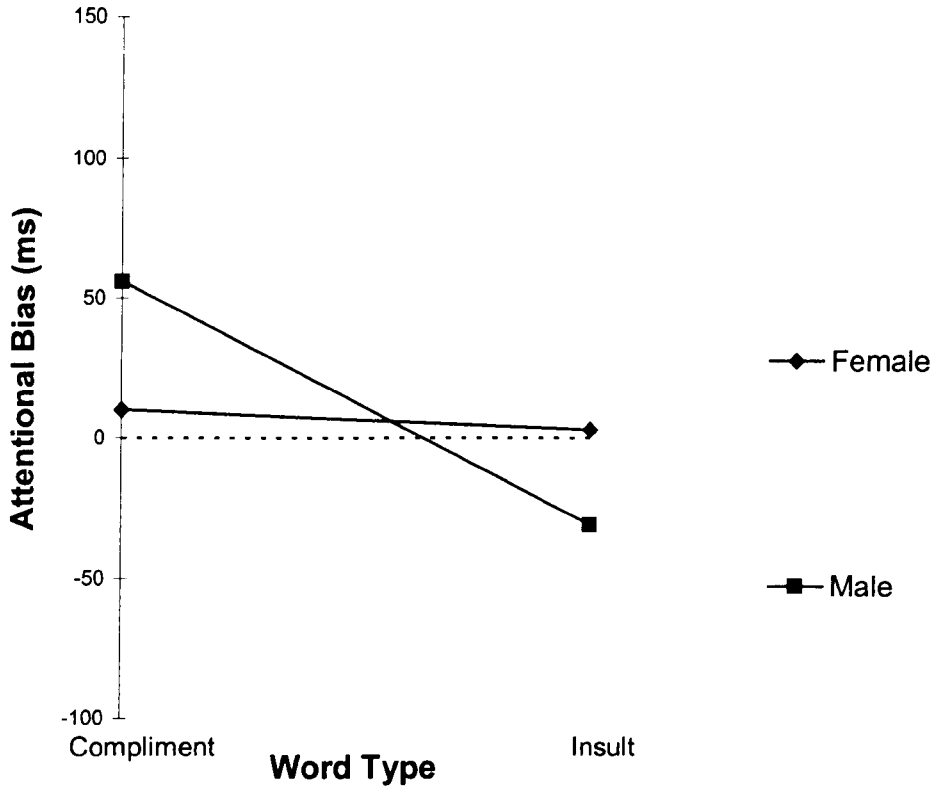
Table 3.5. Effects of sex on attentional bias

	Mean bias score (ms) (standard errors in parentheses)	
Sex	Compliment	Insults
Female	+10 (22.3)	+3 (23.5)
Male	+56* (14.5)	-31^{+} (17.2)

$^{+}$ differs from zero, $p < .10$; * differs from zero, $p < .05$.

It is important to note that bias scores were altered when the six potential outliers (see the beginning of this section) were deleted, with girls' bias being 9ms for compliments and -25ms for insults, and boys' bias being 41ms for compliments and -20ms for insults. However, the difference between boys' compliment and insult bias remained highly significant, t (16) = 4.52, p < .001. Thus it did not appear that the principal sex differences (that is, the direction of attentional bias among boys) could be explained by the influence of outliers.

Figure 3.5. Attentional bias for different sexes



3.4. Effects of gender and behaviour

The previous two analyses (Sections 3.2 and 3.3) suggested three hypotheses: that attention bias was explained by sex (that is, only boys showed an attention bias), or by behaviour category (aggressive and withdrawn schoolchildren showed attention biases), or by a combination of sex and behaviour category. Because of the small cell sizes for a between-participants sex by behaviour category design, it was not possible to carry out parametric ANOVAs including both factors. Instead, the two aggressive groups were combined, and four separate nonparametric Kruskal-Wallis ANOVAs were carried out on bias scores to each type of word, separately for boys and girls, with behaviour category as the independent variable.

Table 3.6. Effects of sex and behaviour on attentional bias

		Mean bias scores (ms) (standard errors in parentheses)		
		Behaviour Category		
Word Type	Sex	Aggressive	Withdrawn	Average
Compliment	Male	62 (25.6)	17 (27.8)	80 (14.1)
	Female*	114 (40.7)	-91 (42.1)	-3 (13.9)
Insult	Male	-53 (23.8)	-34 (41.0)	5 (29.2)
	Female	19 (46.7)	89 (53.2)	-33 (27.6)

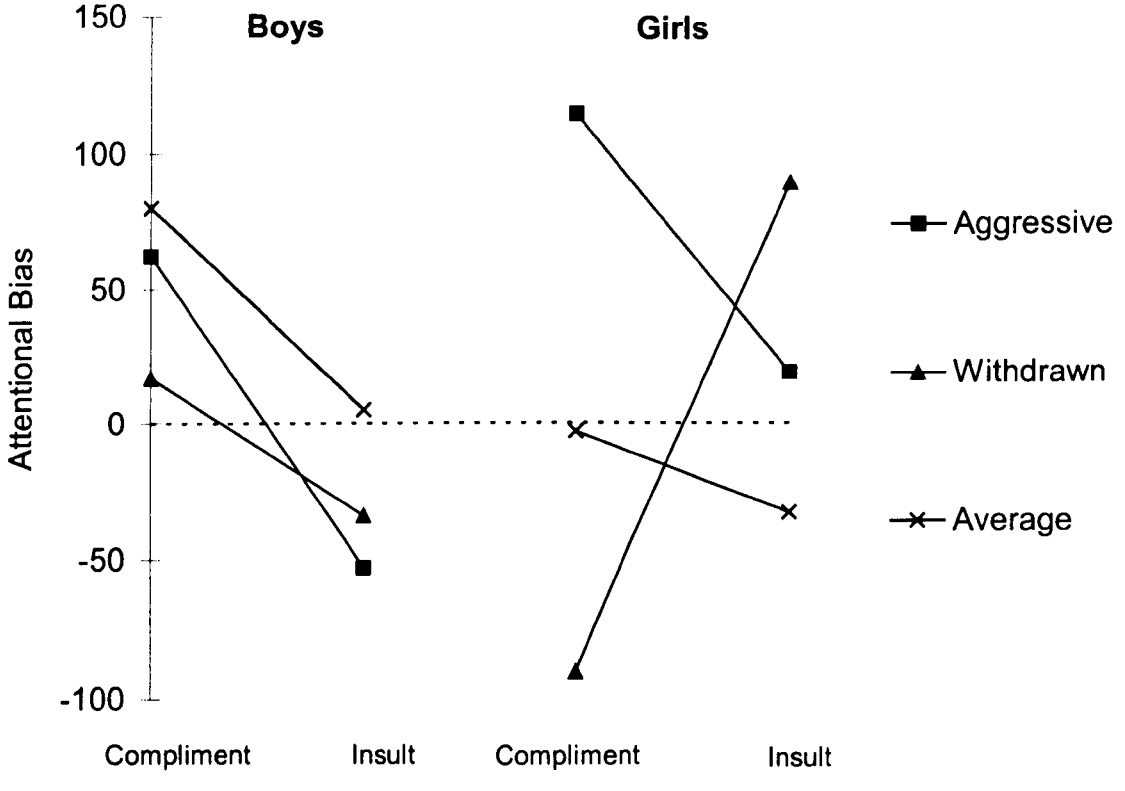
* Significant variability in bias, $p < .01$.

Among boys, behaviour category did not affect bias to compliments or insults, both χ^2s (2) = 3.1, $p > .1$. Notably, each category of boys tended to be biased towards compliments. Among girls, behaviour category did not affect bias towards insults, χ^2 (2) = 4.1, $p > 1$, but did affect bias towards compliments, χ^2 (2) = 10.1, $p = .007$, with aggressive girls biased towards compliments, withdrawn girls away from them, and average girls showing minimal bias. Mean bias scores are shown in Table 3.6 and illustrated in Figure 3.6. Though the numbers are small and results should be interpreted with caution, it is worth noting that all four of the aggressive girls had positive compliment bias scores (ranging from +40ms to +226ms), and all three of the withdrawn girls had negative compliment bias scores (-166ms, -84ms, and -21ms).

It is also worth noting that some of these girls had been identified as outliers in the analyses reported in Sections 3.2 and 3.3: one of the aggressive girls was an outlier on the boxplot of girls' compliment bias, while two of the withdrawn girls were outliers on boxplots of detection latencies within cells of the within-participants design and the 4-way analysis within sex. The observation that the other girls in these behaviour

categories were biased in a similar direction, though not to such an extent, suggests that the bias may be a function of withdrawal and aggression, rather than simply individual variability. This hypothesis is perhaps further supported by the observation that the withdrawn girl with the smallest bias away from compliments (-21ms) was also the one whose standardised aggression score exceeded zero (Z = .86; withdrawal Z = 1.29). If withdrawal biased girls away from compliments, and aggression towards them, then it is not surprising that this participant's bias away from compliments was less than the other two withdrawn girls'.

Fig 3.6. Attentional bias for different sexes and behaviour categories



The aggressive participant whose standardised withdrawal score exceeded zero was not considered to influence the results unduly, because of the tendency for both aggressive and withdrawn boys to be biased towards insults. Moreover, when he was deleted, there was little change to aggressive boys' bias scores (which were 61ms for compliments and –58ms for insults).

These nonparametric analyses suggested a more complex pattern of results than indicated by either of the previous parametric analyses. They gave support to all three explanations of bias: by sex (with all categories of boys biased towards compliments), by behaviour category (with both withdrawn girls and withdrawn boys less biased than other groups towards compliments), and by a combination of sex and behaviour category (with aggressive girls biased towards and withdrawn girls biased away from compliments).[1]

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[1] As a further test, with a larger sample, of the hypothesis that compliment bias was explained by sex, behaviour category and their interaction, the relation of compliment bias to continuous behaviour scores (that is, the separate standardised aggression and withdrawal scales from the RCP) was investigated among the 30 school participants, separately within sex. Among girls, compliment bias was positively correlated with aggression, $r\,(14) = .72$, $p = .003$, and negatively correlated with withdrawal, $r\,(14) = -.61$, $p = .016$. Among boys, the negative correlation of compliment bias and withdrawal reached borderline significance, $r\,(14) = -.50$, $p = .056$. To combine all these effects in a single analysis, a hierarchical multiple regression was carried out on compliment bias scores. Sex was entered at the first step, but did not explain significant variance, with adjusted $R^2 = .052$, $F\,(1, 28) = 2.6$, $p > .1$. Aggression and withdrawal scores were entered at the second step, giving a significant adjusted R^2 of .473, $F\,(3, 26) = 9.7$, $p < .001$. At the third step, interaction terms for sex by withdrawal and sex by aggression were entered, giving an adjusted R^2 of .565, $F\,(5, 24) = 8.5$, $p < .001$. The final regression statistics indicated significant contributions to multiple R of sex ($\beta = -.37$, $p = .009$), indicating that boys were more biased towards compliments than girls, aggression ($\beta = .52$, $p = .001$), indicating that aggression was positively related to compliment bias, withdrawal ($\beta = -.45$, $p = .001$), indicating that withdrawal was negatively

3.5. Effects of gender and victimisation

The above evidence for sex differences, taken together with the correlation between victimisation and bias scores when these were calculated separately for each sex (Table 3.1) suggested the possibility of a combined effect of sex and victimisation on attention bias. To investigate this, the mixed-factor ANOVA was repeated on probe detection latencies, with sex and victim status as between-participants factors, and (as before) word type, word position, and probe position as within-participants factors. Participants were classified as victims if they scored 9 or greater on the victimisation scale (corresponding to their indicating, on average, that they were 'pretty often' the target of aggressive behaviour), and non-victims if they scored 8 or less.

Assumption checks revealed the following. There were more cases than dependent variables in the smallest cell of the main analysis, thus weakening the power of the analysis, but this was not the case for follow-up analyses. There was no evidence of significant skewness within any cell of the design, and no evidence of substantial violation of normality of the data. There was evidence of eight potential outliers on boxplots within each cell for both detection latencies and bias scores. Because of the small numbers involved, these outliers were not initially deleted, but their potential effects on the significant results were considered (see below). Homogeneity of covariance assumptions were not necessary because no within-participants variable had

---

related to compliment bias, and the sex × aggression interaction term ($\beta = .33$, $p = .02$). The nature of this interaction was shown by the positive correlation of aggression with compliments among girls but not among boys. Because of the small numbers involved, the regression results should be interpreted with caution. But their consistency with the results of nonparametric analyses suggests support for the hypothesis that sex and behaviour category had a combined effect on compliment bias.

more than two levels, and homogeneity of variance assumptions were met, all *ps* > .001. Scatterplots suggested that no curvilinear relationships between detection latencies existed for compliments or insults.

Only one interaction involving word position, probe position, and the between-participants factors approached significance, and that was the 4-way interaction between these factors, $F(1, 28) = 3.12, p = .088$. Power for this effect was low (.40). The 5-way interaction did not approach significance (but power was extremely low at .06), suggesting that the 4-way interaction pattern was similar for insults and compliments. The 3-way interaction of word type, word position, and probe position was highly significant, $F(1, 28) = 10.95, p = .003$ (power = .89), as in other analyses (Sections 3.2 and 3.3), indicating that compliment bias differed from insult bias across all participant groups.

Follow-up 3-way victim status × word position × probe position ANOVAs within sex indicated a significant 3-way interaction for boys, $F(1, 12) = 7.68, p = .014$, with adequate power (.74). Follow-up 2-way word position by probe position ANOVAs within victim status, for boys only, indicated a significant 2-way interaction for non-victims, $F(1, 9) = 10.82, p = .009$ (power = .83), but not victims, $F(1, 7) < 1$ (though power was low at .13). Simple effects tests indicated that male non-victims tended to respond faster to probes which appeared in the same position as the target word than to probes which appeared in a different position. Thus, with the target word in the lower part of the screen, detection latencies were greater for upper probes (637ms) than lower probes (581ms), $F(1, 9) = 6.78, p = .029$ (power = .64). With the probe in the lower part of the screen, detection latencies were greater when the probe was preceded by an upper target word (643ms) than when it was preceded by a lower target word (581ms).

Overall bias to target words was +43ms for male non-victims, -17ms for male victims, -1ms for female non-victims, and +9ms for female victims. Because of the significant word type × word position × probe position effect in the main profile analysis, it was important to consider the effects of sex and victim status in terms of bias towards each type of word. These bias scores are shown in Table 3.7, and illustrated in Figure 3.7. Single-sample *t* tests of these means against zero indicated that male non-victims were significantly biased towards compliments, $t(9) = 7.2$, $p < .001$, and that male victims were significantly biased away from insults, $t(7) = 2.4$, $p = .048$. Mann-Whitney tests indicated that male non-victims were more biased towards both compliments and insults than male victims, both Zs = 2.04, $p = .043$. Deleting potential outliers changed some of the bias scores, but had little effect on male non-victims' compliment bias ($N = 8$, $M = 83$ms) and male victims' insult bias ($N = 6$, $M = -66$ms).

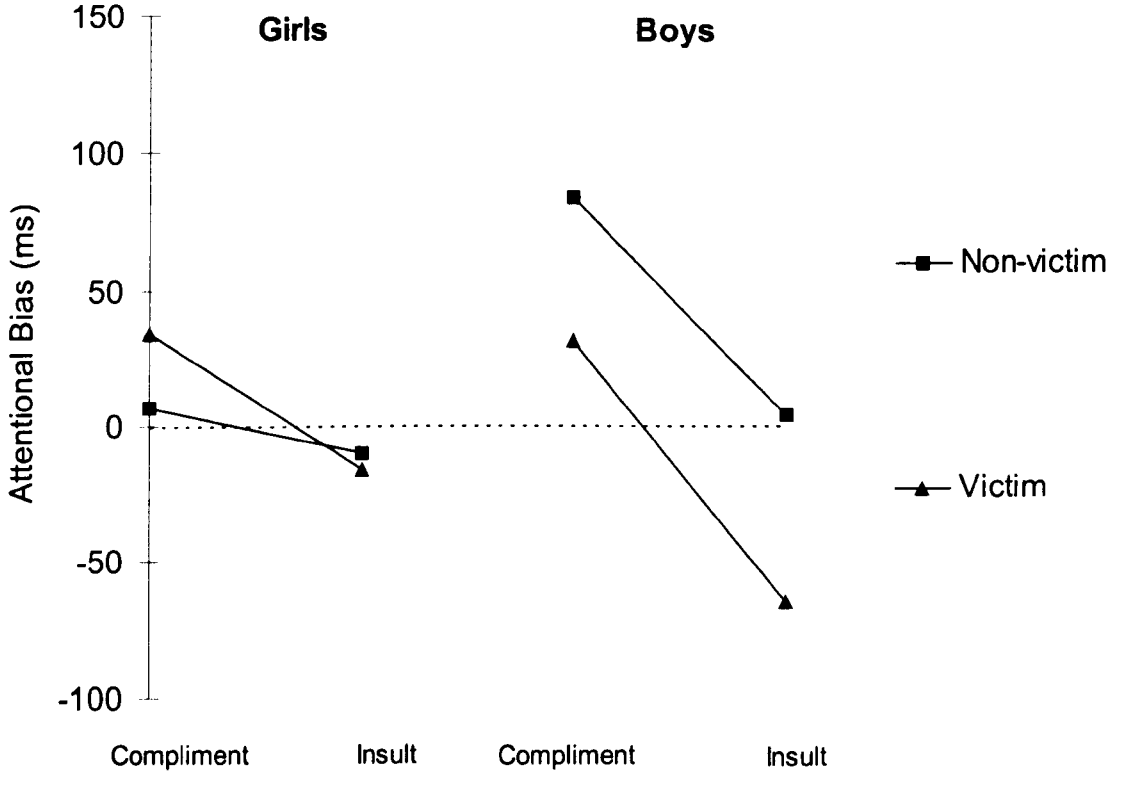
Table 3.7. Effects of sex and peer victimisation on attentional bias

			Mean bias scores (ms) (standard errors in parentheses)	
			Word Type	
Sex	Victim status	*N*	Compliment	Insult
Male	Non-victim	10	+83*** (22)	+4 (25)
	Victim	8	+31 (24)	-65* (28)
Female	Non-victim	5	+7 (30)	-10 (36)
	Victim	9	+34 (23)	-16 (26)

* less than zero, $p < .05$. *** greater than zero, $p < .001$.

Given that attention bias could be explained partly by an interaction of sex and behaviour category, and partly by an interaction of sex and victim category, an important question was whether attention bias was related to an interaction of all three factors. However, a brief consideration of the pattern of results suggests that this was unlikely. The behaviour category × sex interaction effects were found for girls only, and the victim status × sex interaction effects for boys only. Because of this, and because the small sample sizes prevented any meaningful statistical analysis, this possibility was not investigated further.

Figure 3.7. Attentional bias for different sexes and victimisation experiences



3.6. Effects of gender and anxiety

To investigate the possible sex by anxiety interaction (see Table 3.1), a 3-way mixed-factor multivariate ANOVA was carried out on bias scores, with word type as a within-participants factor, and sex and anxiety status as between-participants factors. Participants were classified as anxious if their MASC score was greater than the median, and non-anxious if their score was below the median. There was a significant effect of word type, $F(1, 28) = 14.6, p = .001$ (power = .70), but none of the effects involving anxiety with word position and probe position approached significance.[2] The power of the 2-way interaction was very low, however (.08), indicating a high rate of Type II error. Thus it was hard to draw firm conclusions from this analysis.

[2] It might be hypothesised that social anxiety would be more related to compliment or insult bias than other forms of anxiety. Consistently with this hypothesis, the relation between MASC subscales and bias scores was investigated separately for each sex. Mean social anxiety scores for the whole sample (n = 31) were 10.9, $SD = 6.67$. Boys' compliment bias was negatively related to social anxiety, $r(17) = -.47, p = .052$, but not other forms of anxiety. Girls' insult bias showed a marginally positive relation to social anxiety, $r(12) = .48, p = .10$. To investigate the possibility of a joint effect of social anxiety and sex on attention bias, the 3-way mixed-factor ANOVA was repeated, replacing anxiety status with social anxiety status (again defined by a median split). The interaction of sex and social anxiety status approached significance, $F(1, 27) = 4.01, p = .055$. Non-anxious boys tended to be more biased towards target words (34ms) than socially anxious boys (-19ms), and non-anxious girls tended to be less biased towards target words (-16ms) than socially anxious girls (15ms). As this pattern was similar to those reported for the victim status × sex interaction, and as victimisation and social anxiety were moderately correlated, $r(30) = .43, p = .017$, these results are not described further.

4. Discussion

4.1. Summary of results

There was a complex pattern of attentional biases, particularly in relation to compliments. There was evidence that with increasing aggression, particularly among girls, participants were increasingly biased towards compliments. That is, these participants' attention was drawn to compliments in preference to neutral words. In contrast, with increasing withdrawal, participants' bias towards compliments lessened and, at least for the three withdrawn girls, became a bias away from compliments. That is, their attention was drawn to neutral words in preference to compliments. Gender also influenced attentional bias, with boys in general tending to show a bias towards compliments and (at least in comparison with compliment bias) a bias away from insults. But further inspection of the data suggested that these gender differences were moderated by peer victimisation. Boys who were not victims showed a greater bias towards both compliments and insults than boys who were victims, with the non-victims showing a clear bias towards compliments, and the victims a clear bias away from insults.

4.2. Interpretation

The present study represented the first application of the probe detection task to participants identified by behavioural problems, or peer victimisation, and one of the few studies of automatic encoding processes among socially maladjusted children. None of the results were quite as hypothesised, and their pattern did not suggest a straightforward explanation. In particular, four features of the results were unusual: (a) there were sex differences in attentional bias, which have not generally been found (Vasey *et al.*, 1996); (b) male victims were biased away from threat, in contrast to the

common finding that anxious adults are vigilant for threat and normal adults biased away from it (Mogg & Bradley, 1998); (c) withdrawn females were biased away from positive stimuli, in contrast to normal bias towards positive stimuli (Mogg & Bradley, 1998); and (d) generalised anxiety did not affect attentional bias, though this has been the main variable previously found to do so (Williams *et al.*, 1997).

The small sample sizes available in the present study place limitations on interpretation. The resulting low statistical power in some analyses may explain the absence of evidence for attentional bias in some instances (notably among anxious participants). Low power also made it difficult to investigate fully the joint effect of different factors, especially in combination with sex differences. As Vasey *et al.* (1996) noted, sex differences are an important consideration for future probe detection studies. These authors noted that the substantial adult literature has failed to investigate potential sex differences. In the present study, there was evidence of sex differences, and power was sufficient for a number of key effects, such as the effect of behavioural category on probe detection latencies. Moreover, low power cannot explain the findings of statistically significant bias towards or away from target stimuli

These results are broadly consistent with theoretical models which suggest that maladjusted children show biased processing of certain cues (e.g., Crick & Dodge, 1994; Daleiden & Vasey, 1997), but such models offer a limited framework for interpreting the present results, particularly as their authors tended to predict vigilance for negative social cues. A consideration of the results in the context of the wider literature on attentional bias and emotion gives some indication of interpretations that can probably be ruled out, as well as pointing to theoretical models which may help explain the results.

Interpretations ruled out. First, it was hypothesised at the outset of the present study that aggressive, withdrawn, bullied, and anxious children would all tend to be biased towards insults, and other children away from them, because these represented hostile or negatively evaluative social cues. None of these hypotheses was supported. Even if it were suggested that withdrawn females were biased away from compliments because they interpreted them as sarcastic, as socially anxious patients sometimes do (Butler, 1999), it would then be hard to explain why their attention tended to be biased towards insults.

Second, attentional bias cannot generally be explained as an effect of task-irrelevant processing, cognitive effort to shut out negative stimuli, or a general attention deficit (Williams *et al.*, 1997). In the present study, these hypotheses would predict, respectively, (a) no individual differences in attentional bias, (b) no attentional bias towards positive stimuli, and (c) individual differences in overall probe detection latencies, and so none of them were supported.

Third, there was little support for the hypothesis that attentional bias could be explained by the familiarity of stimuli. In general, attention tends to be drawn towards stimuli which are more likely to be processed frequently (e.g., Dalgleish, 1995). But this hypothesis would not explain (a) why male victims were less biased towards insults than male non-victims, even though the former were, by their own report, more frequently exposed to insults, or (b) why clinically aggressive participants, most of whom had just completed an intervention programme in which therapists frequently gave compliments for prosocial behaviour, were not more but (nonsignificantly) less biased towards compliments than aggressive schoolchildren.

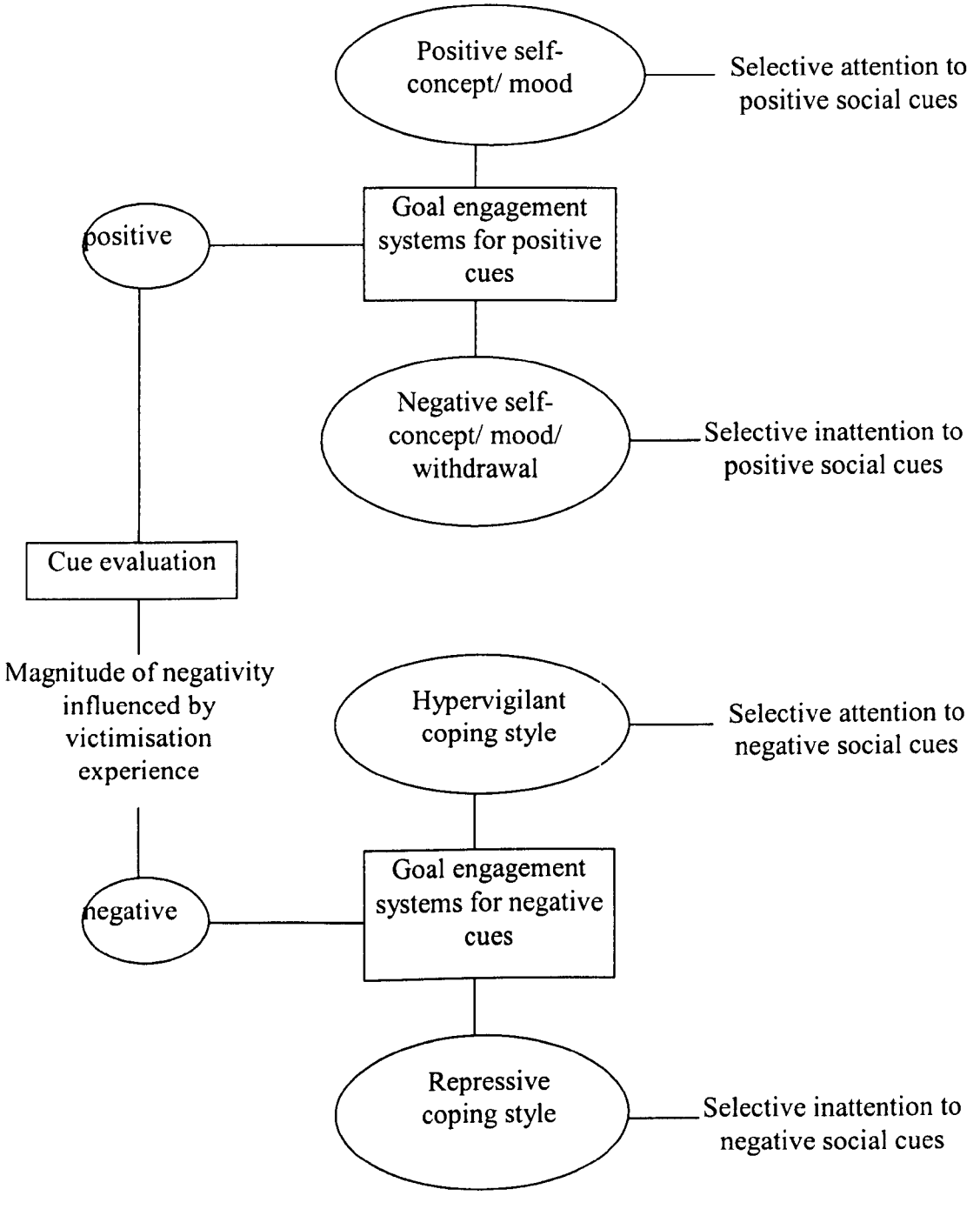
Fourth, attentional bias towards positive stimuli has sometimes been explained by an emotionality or a relatedness hypothesis, with attention drawn (respectively) towards strongly emotional stimuli or towards words which are semantically related to a negative schema, irrespective of the emotional valence of the words (Williams *et al.*, 1997). In either case, participants biased towards compliments would tend also to be biased towards insults. In fact compliment bias was unrelated to insult bias, $r(35) = .07$, n.s., and there was no evidence that this correlation masked a pattern in scatterplots, even with coordinates tagged by behaviour category, sex, or victim status.

Fifth, attentional bias away from target stimuli might be interpreted as evidence of controlled, rather than automatic processing (e.g., Mansell, 2000). That is, attention may initially be automatically directed at insults, and then deliberately redirected away from such stimuli. Mansell argued that controlled redirection occurs at long stimulus durations. However, a controlled processing explanation seems unlikely because (a) the stimulus duration in the present study was comparable to other studies with children (e.g., Taghavi *et al.*, 1999; Vasey *et al.*, 1996), (b) withdrawn females who withdrew their attention from compliments did not do so from insults, and (c) anxious adults' attentional focus on threat tends to diminish rather than to be reversed as stimulus duration increases (Mogg & Bradley, 1998).

Taking some of these explanations together, the present results are not easily explained in terms of Williams *et al.*'s (1997) model of attentional bias, which combined effects of stimulus familiarity, relatedness, and hypervigilance for threat. Neither are they consistent with Mogg & Bradley's (1998) statement of a cognitive-motivational model, which predicts that attentional bias away from stimuli occurs only among low-anxious participants presented with mild-threat stimuli. However, it may be possible to offer an interpretation of the results using features of Mogg & Bradley's

(1998) model and Eysenck's (1997) four-factor theory of anxiety. These features are illustrated in Figure 4.1, and described below.

Figure 4.1. Expanded dual process model of attentional bias (adapted from Mogg & Bradley, 1998)



Expanded dual process model. The model illustrated in Figure 4.1, like Mogg & Bradley's (1998) model, proposes a dual process of cue evaluation and goal engagement. Children first evaluate social cues as positive or negative. Goal engagement systems then automatically direct attention with regard to stimuli as a function of their emotional valence (c.f. Mogg & Bradley, 1998) and of individual attentional style. Mogg & Bradley argued that attention is generally oriented towards positive stimuli and stimuli perceived as moderately or highly threatening, and away from stimuli perceived as mildly threatening. Different attentional styles include vigilant orientation towards stimuli, rejection of positive stimuli (c.f. Bradley *et al.*, 1998), and repression of negative stimuli (Eysenck, 1997). Both the evaluative and the goal engagement processes are influenced by individual differences in behaviour and peer experience (c.f. Mogg & Bradley, 1998), which themselves are likely to be related to particular emotional schemas (c.f. Eysenck, 1997).

The model can be applied to compliments as follows. All participants evaluate compliments as positive. Goal engagement systems will normally tend to orient attention towards compliments as favourable stimuli which enhance positive self-esteem and mood. This accounts for participants' generally greater bias towards compliments. However, this goal engagement is moderated by factors such as social withdrawal, which tend to reduce attentional bias towards compliments. Children who withdraw from social interaction may shy away from positive social evaluation, finding it more embarrassing than rewarding. Inattention to compliments may also be an effect of low mood or self-esteem, which may lead children to reject compliments that they do not believe they deserve. Consistent with this hypothesis, Bradley *et al.* (1998) found that adult dysphoria was related to attentional bias away from positive stimuli. Children low in mood or self-esteem are less likely to be aggressive, and more likely to be withdrawn

or victims of peer aggression (Hawker & Boulton, 2000; Hymel, Bowker & Woody, 1993; Hymel, Woody & Bowker, 1993; Kovacs, 1981; Olweus, 1993). One might suggest that the tendency to reject compliments is more pronounced in withdrawn females than withdrawn males, perhaps because this is an interpersonally-related cognitive process, of the type thought to be more related to female than male social maladjustment (Crick & Dodge, 1994).

It is suggested that participants evaluate insults as threatening. Victims, who are more likely to experience them as actual threats, probably evaluate them as more threatening than do non-victims. Male and female victims tend to differ in their goal with regard to insults, with male victims more likely to try to block out or ignore insults, so as not to show their vulnerability. Their inattention to these negative stimuli would not be expected from the results of studies which have found such inattention only among low-anxious groups (e.g., Bradley, Mogg, Bonham-Carter, Fergusson, Jenkins & Parr, 1997; MacLeod *et al.*, 1986; MacLeod & Mathews, 1988; Vasey *et al.*, 1996). Only one previous study found anxious participants biased away from threatening stimuli (Mansell *et al.*, 1999). Dalgleish *et al.* (2001) found that children with post-traumatic stress disorder were biased away from depression-related words, but biased towards threat-related words.

Male victims in the present study are perhaps more akin to repressors, individuals who score low on measures of anxiety and high on measures of social desirability (Weinberger, Schwartz & Davidson, 1979). Repressors tend to show a defensive attentional bias away from negative stimuli (Bonnano, Davis, Singer & Schwartz, 1991; Fox, 1993; Mogg, Bradley, Dixon, Fisher, Twelftree & McWilliams, 2000). Eysenck (1997) noted that 'repressors...minimise the threateningness of...[and] avoid attending to threat-related external and internal stimuli' (p.55). Male victims may be considered

repressors because (a) males are more likely than females to repress negative emotional responses (Grant & Compas, 1995; Nolen-Hoeksema, 1991), (b) repressors may have an avoidant attachment style (Eysenck, 1997), which seems likely to be characteristic of victims (Smith, Sutton & Myron-Wilson, 1997).

Additionally, selective inattention may be involved in submissive signals such as gaze aversion, which are more likely to occur among individuals such as victims who are on the losing end of aggressive encounters (Gilbert, 1992). Crick & Dodge (1994) hypothesised that social maladjustment is related to instrumental information-processing biases for boys more than girls, and thus avoiding negative social cues and the associated negative affect may be more characteristic of boys, whereas girls may be more likely to attend to insults as interpersonal social stimuli. Female victims may vary in their tendency to repress or to be vigilant for insults, so that mean female victim bias scores cancel both these effects out.

Predictions. If the above model is a valid explanation of the present results, the following predictions can be made. First, dysphoric children or children with low self-esteem would tend to be biased away from compliments, with children low in dysphoria or high in self-esteem biased towards them. Second, male victims would tend more than female victims and male non-victims to show the repressive pattern, scoring high on measures of social desirability and low on measures of anxiety. Third, victims identified as non-repressors should show selective attention for insults, and victims identified as repressors selective inattention. Additionally, alternative interpretations would not be supported. For example, lengthening the stimulus duration would not increase male victims' inattention to compliments, suggesting that the results could not be explained by controlled processing; and compliments would be rated by withdrawn

females as more pleasant than neutral words, suggesting that these children were not interpreting them as sarcastic.

4.3. Limitations

The present study was subject to a number of limitations. First, the sample sizes used were small. As has already been discussed, this does not reduce the validity of the evidence of attentional bias, particularly in a preliminary study. Despite the small *N*s, the magnitudes of various attentional bias scores which differed significantly from zero, $p < .05$, were pronounced, ranging from 56ms (male compliment bias) to 96ms (aggressive schoolchildren's compliment bias), though with large standard errors the true mean biases may have been much less pronounced. Such a degree of attentional bias is not commonplace in probe detection studies (c.f. Bradley *et al.*, 1998, +16ms among anxious adults; MacLeod & Mathews, 1988, +44ms among test-anxious students; Vasey *et al.*, 1996, +29ms among test-anxious children; Taghavi *et al.*, 1999, +67ms among clinically anxious children). But the small sample does limit the extent to which attentional bias can be identified. Further investigation of the effects of aggression, withdrawal, peer victimisation, and gender on attentional bias towards positive and negative social cues, using larger samples, is warranted.

Second, the requirement for active written consent limited the extent to which the present sample was representative. Written consent was received for just over a quarter of the schoolchildren whose parents were written to. Over half of the parents failed to return consent forms, though the response rate was improved by reminder letters. Vasey *et al.* (1996) reported a similar consent rate. Schoolchildren whose parents actively consent to their participation in research have a different demographic profile (Esbensen *et al.*, 1996) from children whose parents do not respond to consent letters. Even the

method of identifying participants used responses from a small proportion of classmates (23.4 per cent), though the internal consistency of this method was high. Time constraints precluded increasing the number of respondents by sending reminder letters. Although passive consent is often used in school-based research (Esbensen *et al.*, 1996), it would not have been ethical for participants to complete the probe detection task without written consent.

Third, the inclusion of a clinical group raises problems of definition. These children were included more for pragmatic than theoretical reasons, being readily accessible aggressive participants in a small-sample study. They were chosen simply on the basis of descriptors on a referral form. It is even less clear how aggressive they were given that five out of the six of them had just completed an intervention aimed at reducing their behaviour problems, and one of these five was diagnosed with Asperger's syndrome. Despite these limitations, these children tended to report the same level of bullying as aggressive schoolchildren, and a similar, if perhaps less extreme, profile of attentional bias. These results suggest that the two groups of aggressive children may have been comparable.

Fourth, the compliments and insults were presented in ways which perhaps reduced their impact. They were presented in visual form as words on a computer screen, rather than being spoken, in the way that children would probably hear them from peers. They were mild and limited in content, because of the constraints of choosing words which would be ethically acceptable and which could be matched for spoken frequency and age of acquisition. They were followed by a probe on every trial, with the risk that some participants may have adopted a strategy of ignoring the lower word and pressing the lower key if a probe did not appear in the upper position. But

despite all these limitations, there was evidence of systematic bias towards or away from certain types of word among certain groups.

Finally, reading ability was not controlled in the present study. Instead, attempts were made to control reading ability effects by controlling for frequency and age of acquisition, and excluding words rated as being acquired after the age of six. Rated age of acquisition is not the same as reading ability, however, which affects attention given to words. There is a risk that some participants may have been unable to read some stimuli, and that these participants may have been the more maladjusted (Carr, 1999). Because of resource limitations, a reading age measure was not readily available to the author, and participating schools were not able to provide reading age data. But even if a measure of reading ability had been available, including it would have lengthened the participation time, and it is important in the current highly-pressured educational context to limit the time schoolchildren need spend participating in research. Moreover, the procedure for the probe detection task provided a check on participants' reading ability. Participants who could not read and follow the instructions on the computer screen would become immediately apparent, because they would not progress through the practice tasks. In fact there were two participants who had difficulty reading instructions and needed help from the author, but only two. The remaining participants followed instructions fully and it is perhaps safe to assume that their reading ability was sufficient. Even if reading ability did affect probe detection times, it is not clear why it might have led to attentional bias for certain types of words which were matched for frequency and age of acquisition.

4.4. Implications

Despite its limitations, the present study offers tentative evidence that most children have an encoding bias which promotes faster processing of positive social cues. This may be a protective processing bias which enhances a positive self-concept, at least among most boys and aggressive children. There may be a risk of its contributing to an overvalued sense of self, which sometimes appears more prevalent among aggressive children (e.g., Hymel, Bowker & Woody, 1993). It is possible that this might lead aggressive children to be slower to accept others' correction (of their antisocial behaviour, for example), but if this is the case, then it does not lead to inattention to insults as one might expect. If withdrawn females, in contrast, tend to reject compliments by removing their attention, they are deprived of such a protective processing bias. They may benefit from being trained to pay more attention to compliments and to accept them more readily, and may particularly be in need of adult praise of their behaviour.

Opinion is divided as to whether selective inattention to negative stimuli is protective or maladaptive (e.g., Eysenck, 1997; Mogg *et al.*, 2000; Vasey *et al.*, 1996). This question was investigated by Cortez & Bugental (1994), who found that children who perceived they had little control over social interactions tended to avert their gaze away from negative social cues, with their fear being raised as a result. Cortez & Bugental argued that children who avert their gaze, who are also more at risk for abuse and unfavourable adult responses, may gain short-term emotional regulation but lose relevant social information and the opportunity to learn appropriate coping responses. Similarly, Eysenck (1997) noted that selective inattention to threat may reduce anxiety and foster self-protection, but may lead to an increased risk of somatisation of

psychological maladjustment. Clark (1997) argued that socially anxious adults' selective inattention to social stimuli interferes with competent social interaction.

Male victims' inattention to insults may prevent them from revealing signs of emotional distress that tend to invite further aggression (Schwartz *et al.*, 1993), and thus may function as a short-term protective factor. However, as targets of others' aggression, victims are in a position of low control. Selective inattention to insults may prevent them from focussing on verbal bullying and learning coping responses (including reassessing negativity of insults), and may raise fear and lead to somatic complaints. Consistent with this hypothesis, bullying is often prominent in the history of adult social phobics (Butler, 1999), victims tend to respond ineffectively to others' aggression (Kochenderfer & Ladd, 1997), and somatic complaints are common among victims (Williams, Chambers, Logan & Robinson, 1996). It may then be useful to desensitise male victims to insults in non-threatening situations, using playful teasing (e.g., Pearce, 1989) or role-play combined with training in effective responses (e.g., Ross, 1996; Webster-Stratton & Hammond, 1997), or to use cognitive restructuring to help them reinterpret verbal aggression in a less negative light.

More generally, the results indicate the presence of bias in the information-processing of verbal social cues among a variety of children. These included victims and non-victims of bullying, aggressive and socially withdrawn children, males and females. There was evidence of bias even though the sample was small, the social stimuli were mild, and the words were presented in a different context (visually, on a computer screen) from that in which children would normally encounter them (spoken, in the context of prosocial or aggressive behaviour in a social interaction). Though challenging Crick & Dodge's (1994) prediction that socially maladjusted children are hypervigilant for hostile or threat cues, these results offer support to their general

hypothesis that such children show a selective attention bias with regard to some social cues. They support the validity of cognitive social problem-solving interventions (e.g., Lochman, Coie, Underwood & Terry, 1993) to help such children interpret social cues more adaptively.

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Appendix 1

Information for professionals

The following is an example of an information letter about the study that was given to the school teacher with whom the author liaised. A similar information letter was sent to the keyworker and General Practitioner of all the potential clinical participants, making it clear that their decision about participation would not affect their treatment in any way.

Oxford Doctoral Course in Clinical Psychology

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Or Child & Family Guidance, 10 Headlands, Kettering, Northants (01536-518022)

11th November 2000

Dear

I am writing to ask whether you would consider inviting some of your pupils to participate in a short research study, concerning the way different kinds of children respond to words they may commonly hear from other children.

The purpose of the study is to investigate how fast aggressive, socially withdrawn, and average children respond to a variety of words, including insults, compliments, and descriptions of things which may provoke their anger or alert them to the risk of being negatively evaluated by others. This research would contribute towards understanding of such children's thinking styles, which should help improve interventions offered to them.

The study consists of two stages. In the first stage, I would ask all the children in a class to complete the "Revised Class Play" (RCP), a questionnaire widely used in school research. In this, they would be asked to imagine they are a director of a play starring the pupils in their class. I would ask them to choose pupils for 30 different roles, such as "a person who is a good leader", "a person who loses their temper easily", and, "a person who prefers to be alone rather than play with others." They would make their choices in private by ticking next to their classmates' names on a list. I would use their responses to identify children perceived by their peers as sociable, aggressive, and socially withdrawn. I should be grateful if a teacher could be present at this time.

I would then invite a subset of these types of children to participate in the second stage of the study. In this stage, I would ask them to complete a computer-based task followed by some questionnaires. I should be grateful for a quiet area in the school, free from distractions but within view of hearing or other adults, where they could complete this task. In the computer task, they would be asked to watch a series of pairs of words presented on a computer screen, with each pair followed by a dot in place of one of the words. Their task would be to press a button on the computer keyboard as soon as they see the dot. Each pair of words would include a neutral word paired with a word used as an insult (e.g., "fat"), a compliment (e.g., "kind"), or as descriptive of something which may provoke anger (e.g., "fist") or the fear of being negatively evaluated by others (e.g., "party"). Most of these words would have been listed previously by children (and therefore likely to be familiar) in a separate study. I would avoid offensive words and racial insults. Finally, I would follow the computer-based task with three standard questionnaires to assess the children's levels of anxiety, experience of bullying, and reading ability. It may be possible to omit the latter test if your school (and others involved) has reading ability data available for all children. These measures would help control for other factors which may affect children's responses.

The first stage of the study would be done with a whole class of children at once, in a session lasting around 20 minutes. Children who participate in the second stage, which would be carried out some time later, would complete the computer-based task individually (taking 10 minutes at most), followed by the questionnaires (a further 15-20 minutes). The questionnaires may partly be completed in small groups if this is convenient. Thus the time asked of each child should be less than an hour in total.

Individual children's responses at all stages would be confidential. In particular, I would not disclose to any children what was said about their peers at the first stage, nor which category (aggressive, withdrawn, or average) any children belong to.

I am also contacting other schools, and hope to recruit up to a hundred children for the second stage (which will mean two or three times that number taking part in the first stage). The research is funded by the Oxford Doctoral Course in Clinical Psychology, as part of my training as a clinical psychologist. It has been approved by the Northampton Medical Research/Ethics Committee.

Should you be interested in your school participating in the research, I would like to visit the school to discuss the research further and to explain the study to children who could be involved.. At the first stage I would write to parents to inform them of the study, and ask them to contact me or the school if they do *not* wish their child to take part. Any children refused permission at this stage would be excluded from the rest of the study. I would then write directly (if you can provide me with addresses) to parents of children selected for the second stage, and ask them to return a signed consent form if they wish their child to take part in the second stage. At each stage the children's participation would be entirely voluntary, and they would be permitted to withdraw from the research at any time. At each stage I would also allow two weeks between inviting children to take part and carrying out the research.

After the research is completed, I can offer to explain the results, and how they might help understand children, to people who are interested (including school staff, children, and parents).

I can be contacted at any of the above numbers or addresses, Tuesday to Friday. Please do not hesitate to contact me if you require further information.

Thank you for taking the time to read this letter.

Yours faithfully,

David Hawker, PhD (Keele), BA (Oxon)
Trainee Clinical Psychologist

Appendix 2

Information for potential participants

The author used the text below to introduce the study to potential participants, before they were given information letters to take home to parents.

My name is David Hawker and I am a psychologist. I study how children get along with each other at school. I have come to ask you if you can help me with a project. The project has two parts. First, I would like you to pretend that you are the director of a play starring the people in your class. Your job would be to choose the people who could play each part or role best. I would ask you about lots of different roles, like the role of a person who is a good leader, the role of a person who loses their temper easily, and the role of a person who would rather play alone than with others. In the second part of the project I want to find out how different pupils react to nice or nasty things they hear from other children. To do this, I would use what you wrote when you were pretending to be director of the play to choose all sorts of different kinds of pupils to take part in the second part. I would not choose everyone because that would take too long. But I would choose some people who are noisy and sometimes lose their temper, some people are good leaders, some people who prefer to play alone, and some people who are quite ordinary and not much different from anyone else. All the people chosen would be different in other ways. Some would be good at maths, some would be good at English, and some would be good at football or netball. Some would be girls and some would be boys. Some would like school and some would not. All people are different, and so I would choose lots of different types to take part. So just

because you're chosen or not chosen, don't think that there's anything bad about you. If I choose you, you can decide whether you would like to take part in an experiment. If you take part in this experiment, I would show you different words on a computer screen. Some of the words are pleasant and some are less pleasant, but they are all words that you might sometimes hear from other children in school. After you see words, you would see a dot on the screen. I would ask you to press a key on the computer keyboard when you see the dot. That experiment would help psychologists to understand the different ways children think. That should make it easier to help all sorts of children to be better leaders, or not to lose their temper so much, or to find more ways of playing with others. After the experiment, I would ask you to answer some questions about bullying and nerves, and to read some things. But I will not ask you to do any of this today. If you want to take part in the first project, I will ask you when I come back to pretend that you are a director of a play, and to choose other people in your class for the parts. Who you choose would be completely private. I would not show your teachers, or any other people in your class, what you have written. Taking part in this research would help me, and may help other children. But it is up to you whether you want to take part. I am also giving you a letter to take home about the first part of the research. If you or your parents do not want you to take part, you do not have to. Just tell me or your teacher by the time I come back. If I decide to ask you if you would like to take part in the second part of the experiment, with the computer, you can decide when I ask you. I will write again to your parents then. If you like, you can do the first part of the project and not the second part. Please ask me if you have any questions about this. Ask me now or when I come back.

Appendix 3

Information for parents of school-based potential participants

The following is an example of an information letter that was given to potential school-based participants to take home to their parents. An adapted version of the letter, omitting details of screening, was sent directly to the parents of schoolchildren selected as aggressive or withdrawn in screening if these parents had not responded to the initial letter. These parents were asked to reply with an enclosed stamped addressed envelope. A copy of the same adapted version was sent a month afterwards to those parents who had still not replied.

Oxford Doctoral Course in Clinical Psychology

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Or Child & Family Guidance,
10 Headlands,
Kettering,
Northants
01536-518022

21st November 2000

Dear parent,

I am inviting your child to take part in a short research project. Before you decide whether you want your child to take part, please read the following information about why the research is being done and what it will involve. Please discuss it with your child and their teacher, and ask me if there is anything that is not clear or you would like more information.

The project is about the way different kinds of children respond to words they may commonly hear from other children. It is funded by the Oxford Doctoral Course in Clinical Psychology, as part of my training as a clinical psychologist. It has been approved by your child's school and the Northampton Medical Research/ Ethics Committee. I hope that at least a hundred children will take part in Northamptonshire.

The project has two parts. First, I would like your child to pretend they are the director of a play starring the people in their class. Your child's job would be to choose the people who could play each part or role best. I would ask them about lots of different roles, like the role of a person who is a good leader, the role of a person who loses their temper more easily than others, and the role of a person who would rather play alone than with others. This would be done in your child's class, at the same time as other children, and would take about 15-20 minutes. Who the children choose would be completely private, and I would not show it to anyone else.

After this first stage, I would use what the children have told me, to invite different kinds of pupils to take part in the second stage. I would choose some children who lose their temper more easily than others, some who are good leaders, some who prefer to play alone, and some who are quite ordinary and not much different from anyone else. If I choose your child it does not mean they are very different from others, because I am choosing a variety of children.

If I do choose your child, and they have your permission, I would give them a short task on a computer. If they take part, I would show them different words, and dots, on a computer screen. Some of the words would be things children say to upset each other, or words that describe things which might make them angry or worry about what others think. Other words would be things school children say to make each other feel good, or words which are not emotional at all. I would ask them to press a button on the

computer keyboard whenever they see a dot. After the computer task, I would ask your child to answer some questions about bullying, how often they feel nervous, and what they can read.

All together, the project should take no more than an hour for each child. I would keep confidential what your child tells me. Taking part in this research would help psychologists to understand the different ways children think. That should make it easier to help all sorts of children to be better leaders, or not to lose their temper so much, or to find more ways of playing with others.

It is up to you whether you want your child to take part in this research, and their education will not be affected if they do not take part. If you would like your child to take part, please let me know by returning the slip below to your child's teacher, by Wednesday 29th November.

Your child cannot take part in the research unless I receive written permission from you.

Please contact me if you have any further questions or would like a report of the results of the research.

Thank you for reading this.

Yours faithfully,

David Hawker, PhD (Keele), BA (Oxon) Trainee Clinical Psychologist

(supervised by Dr Tim Williams, Consultant Clinical Psychologist)

.....

Please return this slip to your child's teacher by Wednesday 29th November

I do*/do not* wish my child to take part in Dr Hawker's research.

Child's name (BLOCK CAPITALS).....

Signed..... (parent or guardian) Date .....

* Please delete as appropriate

Appendix 4

Information letter for parents of potential clinical participants

The following is an example of a letter that was sent to parents of potential clinical participants.

Oxford Doctoral Course in Clinical Psychology

Isis Education Centre • Warneford Hospital • Headington • Oxford OX3 7JX •
Tel: 01865 226431/226374 • Fax: 01865 226364 • e-mail: maxine.pribyl@oxmhc-tr.anglox.nhs.uk •

Or Child & Family Guidance,
10 Headlands,
Kettering,
Northants
01536-518022

7th March 2001

Dear

I am writing to you to invite your child to take part in a research project. Before you decide whether you want your child to take part, please read the following information about why the research is being done and what it will involve. Please discuss it with your child and any health professionals involved with them, and ask me if there is anything that is not clear or you would like more information.

The project is about the way different children respond to words they may commonly hear from other children. It is funded by the Oxford Doctoral Course in Clinical Psychology, as part of my training as a clinical psychologist. It has been approved by the Northampton Medical Research/Ethics Committee, and I shall also inform your child's GP if your child is going to take part.

I hope that about 40 children will take part in total. I have chosen children who are attending the group for 9- to 12-year-old children at 10 Headlands, Kettering, on Mondays, so that I can compare them to children in local schools.

If your child takes part in this research, I would ask them to complete a short task on a computer. They would see a series of words and dots on the computer screen. They would need to press a button on the computer keyboard whenever they see a dot. The types of words they would see would include things children say to upset each other or to make each other feel good, and words which are not emotional at all.

After the computer task, I would ask your child to answer some questions about bullying and how often they feel nervous. I may also ask you to fill in a questionnaire about your child.

All together this should take no more than half an hour. I would keep confidential what your child tells me, and not share it with anyone else, unless there are good reasons to do so.

It is up to you whether you want your child to take part in this research. Please note that this research is nothing to do with the group. Your child's treatment will not be affected if they do not take part.

I will telephone you in a week's time to ask if you would be willing for your child to take part. I can discuss the research further with you then. I would try to see your child either before or after the group at 10 Headlands, at a time agreed with you, or at another convenient place.

Please do not hesitate to contact me at Child and Family Guidance in Kettering if you have any questions or would not like your child to take part in the research.

Thank you for reading this.

Yours faithfully,

David Hawker, PhD (Keele), BA (Oxon)
Trainee Clinical Psychologist

Research Supervisor Dr Tim Williams
Consultant Clinical Psychologist

Clinical Supervisor Kobus Janse van Rensburg (Consultant Clinical Psychologist)

Appendix 5

Revised Class Play

The following instructions, taken from Masten et al. (1985), were used to introduce the Revised Class Play (RCP). A template for the RCP follows, which was presented as a 12-page booklet, ending with a blank page. Following each item, and adjacent to each tick-box, were names of children in the class, in alphabetical order. Separate booklets were prepared with lists of male and female classmates.

> What I want each of you to do is to pretend that you are the director of a play starring the students in this classroom. The director of the play has to do many things but the most important job is to select the right people to act in the play. So, your job is to choose the students who could play each part or role best. Try to pick the students who seem to fit each part in real life. I will ask you to select parts twice. First I will ask you to select parts for the girls in your class. There is a list of all the girls after each part. Then I will ask you to select parts for the boys. Each time, choose only one person in your class for the part. You are not allowed to choose yourself for a part. You can give more than one part to the same person. When we start, I will read each part twice, to give you time to make your choice. What you write will be confidential. That means I will not tell your teachers or anyone in your class who you have selected.

Revised Class Play
(Masten, Morison, & Pellegrini, 1985)
Booklet One

Write your name here:.....

Write today's date here:.....

1. Put a tick by a person who is a good leader (DO NOT tick yourself)
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2. Put a tick by a person who gets into a lot of fights (DO NOT tick yourself)
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3. Put a tick by a person who would rather play alone than with others (DO NOT tick yourself)
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4. Put a tick by a person who <u>has good ideas for things to do</u> (DO NOT tick yourself)
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5. Put a tick by a person who <u>loses their temper easily</u> (DO NOT tick yourself)
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6. Put a tick by a person who <u>shows off a lot</u> (DO NOT tick yourself)
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7. Put a tick by a person who
<u>is someone you can trust</u>
(DO NOT tick yourself)

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8. Put a tick by a person who
<u>interrupts when other children are speaking</u> (DO NOT tick yourself)

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9. Put a tick by a person who
<u>has many friends</u>
(DO NOT tick yourself)

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10. Put a tick by a person who <u>will wait their turn</u> (DO NOT tick yourself)
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11. Put a tick by a person whose <u>feelings get hurt easily</u> (DO NOT tick yourself)
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12. Put a tick by a person who <u>everyone listens to</u> (DO NOT tick yourself)
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13. Put a tick by a person who plays fair (DO NOT tick yourself)
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14. Put a tick by a person who has trouble making friends (DO NOT tick yourself)
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15. Put a tick by a person who acts like a little kid (DO NOT tick yourself)
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16. Put a tick by a person who <u>has a good sense of humour</u> (DO NOT tick yourself)
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17. Put a tick by a person who <u>can't get others to listen</u> (DO NOT tick yourself)
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18. Put a tick by a person who <u>is very shy</u> (DO NOT tick yourself)
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19. Put a tick by a person who is polite (DO NOT tick yourself)
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20. Put a tick by a person who makes new friends easily (DO NOT tick yourself)
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21. Put a tick by a person who is too bossy (DO NOT tick yourself)
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22. Put a tick by a person who is often left out (DO NOT tick yourself)	23. Put a tick by a person who helps other people when they need it (DO NOT tick yourself)	24. Put a tick by a person who is usually sad (DO NOT tick yourself)
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25. Put a tick by a person who <u>everyone likes to be with</u> (DO NOT tick yourself)
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26. Put a tick by a person who <u>can get things going</u> (DO NOT tick yourself)
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27. Put a tick by a person who <u>teases children too much</u> (DO NOT tick yourself)
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28. Put a tick by a person who is usually happy (DO NOT tick yourself)
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29. Put a tick by a person who picks on other kids (DO NOT tick yourself)
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30. Put a tick by a person who likes to play with others rather than alone (DO NOT tick yourself)
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Blank Page

MASC

By John March M.D. M.P.H.

Appendix 6

Name: _____ Age: _____ Gender: Male/Female

Date: _____ School Year: _____

This questionnaire asks you how you have been thinking, feeling, or acting recently. For each item, please circle the number that shows how often the statement is true for you. If a sentence is true about you a lot of the time, circle 3. If it is true about you some of the time, circle 2. If it is true about you once in a while, circle 1. If a sentence is hardly ever true about you, circle 0. Remember, there are no right or wrong answers, just answer how you have been feeling recently.

Here are two examples to show you how to complete the questionnaire. In Example A, if you were hardly ever scared of dogs, you would circle 1, meaning that the statement is rarely true about you. In Example B, if thunderstorms sometimes upset you, you would circle 2, meaning that the statement is sometimes true about you.

	Never true about me	Rarely true about me	Sometimes true about me	Often true about me
Example A I'm scared of dogs	0	(1)	2	3
Example B Thunderstorms upset me	0	1	(2)	3

Now try these items yourself. Don't forget to do the items on the back of the questionnaire as well.

I feel tense or uptight	0	1	2	3
I usually ask permission	0	1	2	3
I worry about other people laughing at me	0	1	2	3
I get scared when my parents go away	0	1	2	3
I keep my eyes open for danger	0	1	2	3
I have trouble getting my breath	0	1	2	3
The idea of going away on a school trip scares me	0	1	2	3
I get shaky or jittery	0	1	2	3
I try to stay near my mum or dad	0	1	2.	3
I'm afraid that other kids will make fun of me	0	1	2	3
I try hard to obey my parents and teachers	0	1	2	3
I get dizzy or faint feelings	0	1	2	3
I check things out first	0	1	2	3

Please turn the page to finish the questionnaire .....

MASC

By John March M.D. M.P.H.

100

	Never true about me	Rarely true about me	Sometimes true about me	Often true about me
I worry about being asked questions in class	0	1	2	3
I'm jumpy	0	1	2	3
I'm afraid other people will think I'm stupid	0	1	2	3
I keep the light on at night	0	1	2	3
I have pains in my chest	0	1	2	3
I avoid going to places without my family	0	1	2	3
I feel strange, weird, or unreal	0	1	2	3
I try to do things other people will like	0	1	2	3
I worry about what other people think of me	0	1	2	3
I avoid watching scary films and TV programmes	0	1	2	3
My heart races or skips beats	0	1	2	3
I stay away from things that upset me	0	1	2	3
I sleep next to someone from my family	0	1	2	3
I feel restless and on edge	0	1	2	3
I try to do everything exactly right	0	1	2	3
I worry about doing something stupid or embarrassing	0	1	2	3
I get scared going places in the car or on the bus	0	1	2	3
I feel sick to my stomach	0	1	2	3
If I get upset or scared, I let someone know straight away	0	1	2	3
I get nervous if I have to perform in public	0	1	2	3
Bad weather, the dark, heights, animals, or insects scare me	0	1	2	3
My hands shake	0	1	2	3
I check to make sure things are safe	0	1	2	3
I have trouble asking other kids to play with me	0	1	2	3
My hands feel sweaty or cold	0	1	2	3
I feel shy	0	1	2	3

Thank you for completing the questionnaire.

Appendix 7

Peer Relationships Questionnaire (Rigby & Slee, 1992)

Answer all the questions from left to right, by ticking a box which shows the best answer. There are no right or wrong answers. Your answers will be confidential.

1. How often do you fight kids you can usually beat?

☐ never ☐ once in a while ☐ pretty often ☐ often

2. How often do you enjoy upsetting wimps?

☐ never ☐ once in a while ☐ pretty often ☐ often

3. How often do you get picked on by other kids?

☐ never ☐ once in a while ☐ pretty often ☐ often

4. How often, in a group, do you tease others?

☐ never ☐ once in a while ☐ pretty often ☐ often

5. How often do you get called names by other kids?

☐ never ☐ once in a while ☐ pretty often ☐ often

6. How often do you get made fun of?

☐ never ☐ once in a while ☐ pretty often ☐ often

7. How often do you like to make other kids scared?

☐ never ☐ once in a while ☐ pretty often ☐ often

8. How often do you get hit and punched?

☐ never ☐ once in a while ☐ pretty often ☐ often

Appendix 8

Information for parents of children asked to generate word stimuli

The letter on the following page was given to schoolchildren who were asked to generate examples of compliments and insults, to take home to their parents, after the author had met with them to explain the study.

Oxford Doctoral Course in Clinical Psychology

Isis Education Centre • Warneford Hospital • Headington • Oxford OX3 7JX •
Tel: 01865 226431/226374 • Fax: 01865 226364 • e-mail: maxine.pribyl@oxmhc-tr.anglox.nhs.uk •

8th November 2000

Dear parent,

We are inviting your child to take part in a short research project at Meadowside Junior School. The project is about words children use when talking to each other. Before you decide whether you want your child to take part, please read the following information about why the research is being done and what it will involve. Please discuss it with your child and their teacher, and ask us if there is anything that is not clear or you would like more information.

The research is funded by the Oxford Doctoral Course in Clinical Psychology, as part of David Hawker's training as a clinical psychologist. It has been approved by your child's Head Teacher, class teacher, and Northampton Medical Research Ethics Committee.

The purpose of the study is to find examples of words children use as insults and compliments, and examples of things that make them angry. Your child would be asked to write down as many of these kinds of words as they can. This would be done in your child's class, at the same time as other children, and would take about 20-25 minutes. A teacher would be present throughout this time. The words your child would write would not be seen by their teacher and would be anonymous, so we would not know who wrote different words. We hope that between one hundred and two hundred children would take part in the research, so that we would have a large number of examples of words at the end.

Later, in a different research project, we plan to look at how different children (not your child) react to some of these words. This research would help us learn more about the ways different children think (particularly children who have difficulties getting along with others), so that we can help these children get along better with other children in future.

All that we would like your child to do is take part in the research in class, in which we would ask them to write down different words. It is up to you whether you want your child to take part, and their education will not be affected if they do not take part. If you do **not** wish your child to take part, please return the slip below to Meadowside Junior School, or contact us, before.....
Please also contact us if you would like a report of the results of the research.

Thank you for reading this.

Yours faithfully,

David Hawker, PhD (Keele), BA (Oxon)
Trainee Clinical Psychologist

Dr Tim Williams,
Consultant Clinical Psychologist

Dr David Hawker can be contacted either through address at the top of this letter, or at:
Child & Family Guidance, 10 Headlands, Kettering, Northants (01536-518022),

.....

Please return this slip if you do **not** wish your child to take part in the research about words children use when talking to each other.

I do*/do not* wish my child to take part in the research.

Child's name (BLOCK CAPITALS).....

Signed..... (parent or guardian) Date .....

* Please delete as appropriate

Appendix 9

Material for generating word stimuli

The 71 schoolchildren who were asked to generate examples of compliments and insults did so using the following questionnaire, which was presented as a 6-page booklet and read to the participants.

Words Questionnaire

This is a questionnaire which is part of a research project. The project is about the kinds of words that school pupils use to upset each other, or to make each other feel good about themselves, and things that make them angry or cross.

On the following pages there are different questions about these words and things. Please answer each question by writing down as many examples as you can of each kind of word. You will have five minutes to write down as many words as you can. Then answer the next question.

The words you write down will be anonymous. You can write your age, school, and whether you're male or female. But your teachers will not know what you write and neither will anyone else.

Taking part in this project and may help other children. But it is completely up to you to decide if you want to do it. If you do not want to write down any words, you do not have to. If you do not want to hand in words you have written, you do not have to hand them in. If you do not want to take part, please write or draw something sensible on your paper while other people are writing, so you do not distract them.

This is not a test. There are no right and wrong answers. There are no prizes for thinking of the most words. It does not matter if you cannot think of words. So please do not copy anyone else. Think of as many different words as you can. If you copy other people, your words will be all the same, and not different.

Put your hand up if you want to ask any questions about the questionnaire.

Please do not turn over until you are asked to.

1. First, write down as many words as possible that come into your mind.

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Please do not turn the page until you are asked to.

2. Write down words that one child would call another to upset or insult them.

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20. _____

Please do not turn the page until you are asked to.

3. Write down as many things as you can that make children angry or cross.

1. _____

2. _____

3. _____

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Please do not turn the page until you are asked to.

4. Write down words that one child would call another to make them feel good about themselves.

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Please turn the page when you have finished.

Now that you have finished writing down different words, please write down the following.

Write today's date here:.....

Write your age here:.....

Write here whether you are male or female:.....

Write your school here:.....

Thank you for taking part in the research. If you have any comments or opinions about the research, and about the way these words will be used, please write them below.

Appendix 10

Paired stimuli used in probe detection task

Compliment pairs

Compliment	Matched neutral word
beautiful	beginning
best	call
cheerful	daylight
clean	mouse
clever	pardon
content	attempt
cool	swim
fast	shop
fine	line
friend	ground
funny	paper
give	room
good	back
great	place
well	know
wicked	barrel

Compliment	Matched neutral word
happy	woman
help	rest
helpful	village
honest	liquid
kind	half
like	year
love	post
lovely	coffee
nice	book
play	head
pretty	letter
right	whole
share	guess
strong	church
thank	sense
want	find

Insult pairs

Insult	Matched neutral word
baby	wash
big	car
cry	fly
chicken	blanket
fat	sum
ginger	wiggle
hate	wood
nasty	lemon
pig	pin
rubbish	pattern
stupid	market
ugly	iron
weak	core
sad	bow
shut	step
poor	note
soft	plug

Insult	Matched neutral word
little	before
spot	hold
liar	lily
kick	aunt
dog	eye
dirty	cover
cheat	shawl
short	close
worst	track
monkey	pepper
shy	hop
terrible	material
bad	man
silly	cover
foolish	mixture
wrong	night
odd	oil

Neutral pairs

Neutral word	Matched neutral word
arch	babe
band	barn
beam	bolt
clay	cube
echo	fawn
hoof	lion
peck	thaw
mast	wren
pyramid	brownie
beehive	skylark
forest	butter
cattle	island
keeper	kennel

Neutral word	Matched neutral word
search	potato
canal	fairy
ferry	magic
juice	clink
robin	piano
onion	movie
wheat	uncle
sauce	trunk
violet	stripe
second	willow
deer	lamb
pigeon	napkin

Appendix 11

NORTHAMPTON MEDICAL RESEARCH/ ETHICS COMMITTEE
Chairman: Mr Fred Evans
Secretary: Miss Michelle Skelton

Northamptonshire NHS
Health Authority

Highfield
Cliftonville Road
Northampton
NN1 5DN

Tel: 01604 615000
Fax: 01604 615010

Our Ref: FE/MS/00/86

13 October 2000

Mr David Hawker
Clinical Psychology Training
Isis Education Centre
Warneford Hospital
OXFORD OX3 7JX

Dear Mr Hawker

00/86 CHILDREN'S VERBAL CUES USED IN SOCIAL INTERACTIONS

The Northampton Medical Research/Ethics Committee reviewed your application in relation to the above study at their meeting on Thursday 12 October 2000, and I am pleased to inform you that Formal Ethical Approval has been granted. However, the Committee requested an assurance that the completed questionnaires will be kept secure in a locked cupboard, and I would be grateful if you could provide me with written confirmation of this.

I confirm that the Northampton Medical Research/Ethics Committee operates according to Good Clinical Research Practice (GCP) principles, and enclose a copy of the Committee's Constitutions and Standing Orders.

To complete our records regarding the project, please complete and return the form accompanying this letter.

Please let me know if the study has to be terminated or any ethical considerations arise which need to be discussed further by the Committee.
Also requested a written report when finished

Yours sincerely

Michelle Spinks
Secretary, Northampton Medical Research/Ethics Committee

Appendix 12

Letter to Northamptonshire Medical Research/Ethics Committee about data protection

Oxford Doctoral Course in Clinical Psychology

Isis Education Centre ◆ Warneford Hospital ◆ Headington ◆ Oxford OX3 7JX ◆
Tel: 01865 226431/226374 ◆ Fax: 01865 226364 ◆ e-mail: david.hawker@oxmhc-tr.anglox.nhs.uk ◆

Or Child and Family Guidance
10 Headlands
Kettering
Northants

Ms Michelle Spinks
Secretary
Northampton Medical Research/Ethics Committee
Northamptonshire Health Authority
Highfield
Cliftonville Road
Northampton NN1 5DN

27th October 2000

Dear Ms Spinks,

Re: 00/86 Children's verbal cues used in social interactions

Thank you for writing to inform me that formal ethical approval has been granted for the above study.

You asked about the security of questionnaires. Completed questionnaires will be kept secure either on my person, in a locked drawer at St Mary's Hospital, Kettering, or in a locked room or cupboard at my home or work in Oxfordshire. I hope this will be sufficient.

Yours sincerely,

David Hawker
Trainee Clinical Psychologist

NORTHAMPTON MEDICAL RESEARCH/
ETHICS COMMITTEE
Chairman: Mr Fred Evans
Secretary: Mrs Michelle Spinks

Northamptonshire NHS
Health Authority

Highfield
Cliftonville Road
Northampton
NN1 5DN

Tel: 01604 615000
Fax: 01604 615010

Our Ref: FE/MS/00/98

13 November 2000

Mr David Hawker
Clinical Psychology Training
Isis Education Centre
Warneford Hospital
OXFORD
OX3 7JX

Dear Mr Hawker

00/98 BIASED ATTENTIONAL PROCESSING AMONG SOCIALLY WITHDRAWN AND AGGRESSIVE CHILDREN

The Northampton Medical Research/Ethics Committee reviewed your application in relation to the above study at their meeting on 9 November 2000, and I am pleased to inform you that Formal Ethical Approval has been granted.

I confirm that the Northampton Medical Research/Ethics Committee operates according to Good Clinical Research Practice (GCP) principles, and enclose a copy of the Committee's Constitutions and Standing Orders.

To complete our records regarding the project, please complete and return the form accompanying this letter. Please also let me know if the study has to be terminated or any ethical considerations arise which need to be discussed further by the Committee.

Yours sincerely

Michelle Spinks
Secretary, Northampton Medical Research/Ethics Committee

Appendix 14

ince William Post Graduate Centre
ttering General Hospital
thwell Road
ttering
rthants
N16 8UZ

l: Direct Line (01536) 492853
x/Answerphone: (01536) 492856

Prince WILLIAM
POST GRADUATE
MEDICAL EDUCATION CENTRE

24th January 2001

Mr. D. Hawker
Trainee Clinical Psychologist
Child & Family Guidance
10 Headlands
Kettering
Northants

Dear Mr. Hawker

CHILDREN'S VERBAL CUES USED IN SOCIAL INTERACTIONS

Further to the above Study which was received and considered at the Kettering Ethical/Research Committee on the 9th January 2001 I write to inform you that Approval for the study to commence has been given subject to the following:

- The use of an identifyer to replace the child's name on the questionnaire
- Text amendments:
  Initial letter to parents 2nd paragraph amend 'different kinds of children' to read 'different children'. Text in the 4th paragraph 'After this first stage, some will be chosen ....' should also be amended as in its present format it will cause parents to worry about which category their child has been placed in.
  Letter to parents re second stage 3rd paragraph amend 'different kinds of children' to read 'different children'. The 4th paragraph also need to be amended to give parents a better explanation.

In order to assess and monitor studies considered by the Committee, and to facilitate audit requirements, I should be grateful if you could report the conclusion of the Study together with any serious effects that are highlighted during the duration and/or any other details e.g. if the Study was abandoned, etc. Copies of any material sent for publication should also be forwarded to the Committee for information.

Yours sincerely

M. R. Newman
Chairman, Kettering Ethical/Research Committee